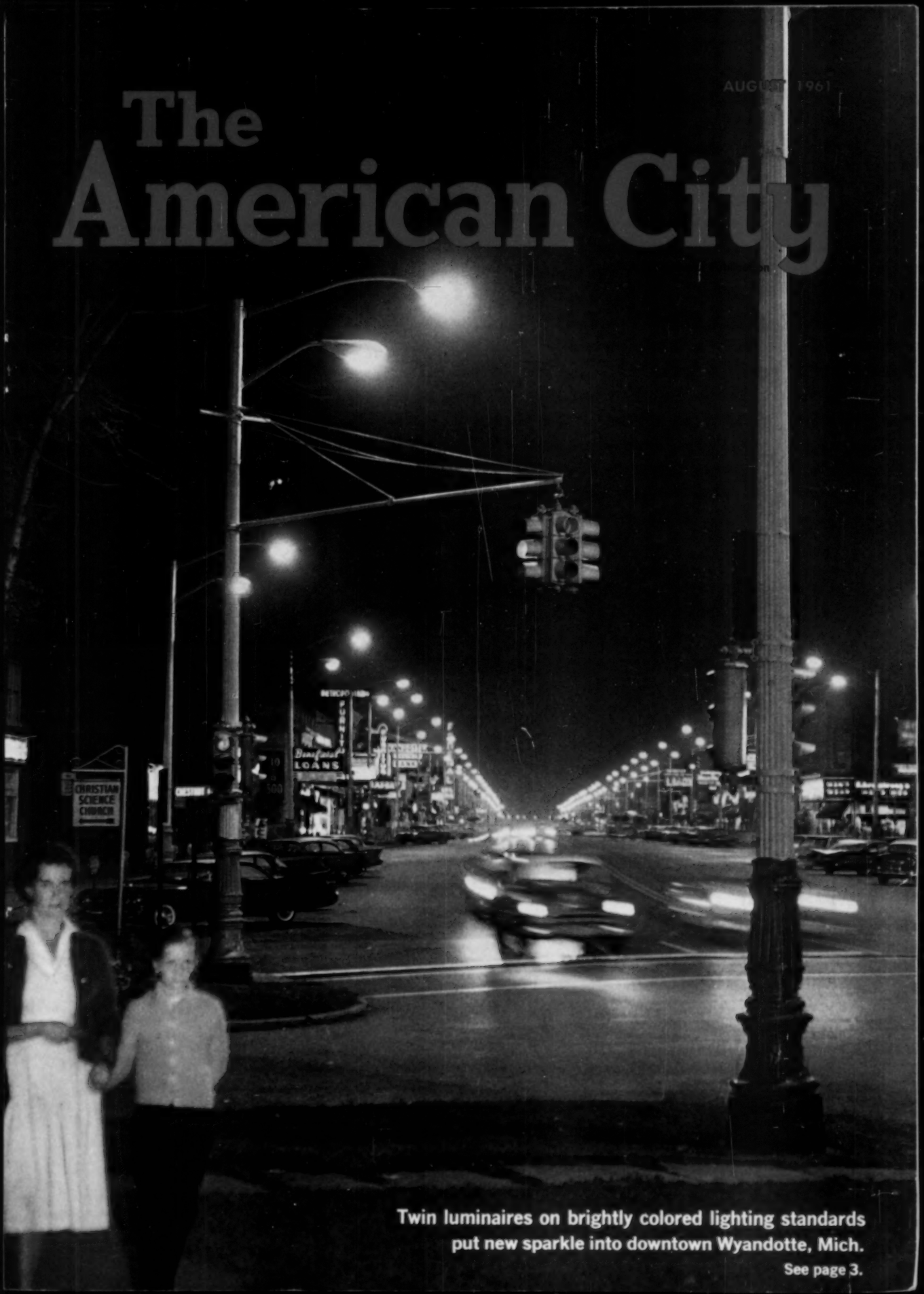
AUGUST 1961

The American City

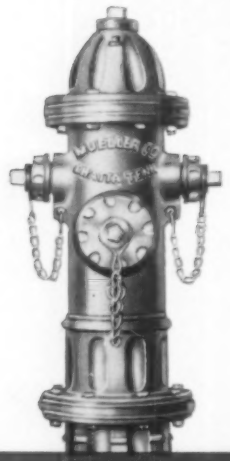


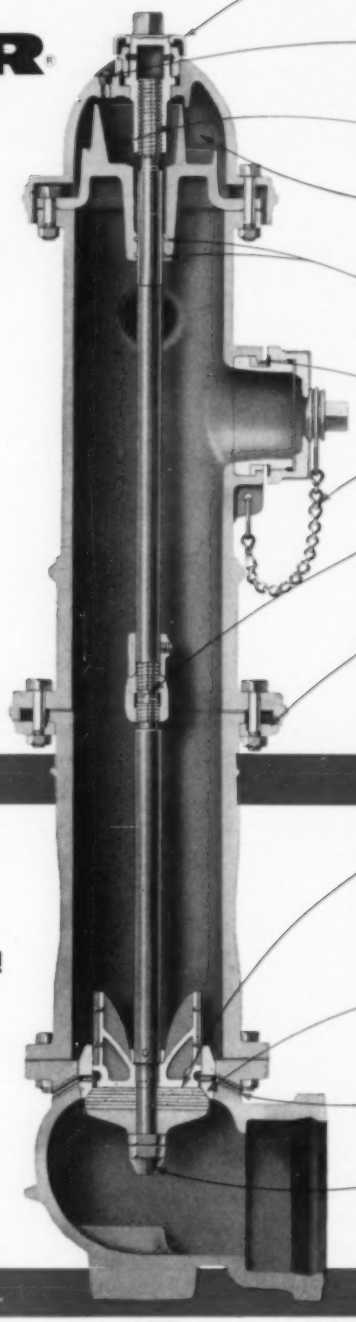
Twin luminaires on brightly colored lighting standards put new sparkle into downtown Wyandotte, Mich.

See page 3.

MUELLER

AWWA IMPROVED FIRE HYDRANTS





BRONZE WEATHER CAP—Keeps water away from operating nut and prevents tampering.

OIL FILLER PLUG—Check oil level quickly without removing bonnet.

OIL RESERVOIR—Automatically lubricates stem threads and bearing surfaces.

DRY TOP DESIGN—Threads and bearing surfaces are sealed from water.

"O" RING SEALS—Permanent, watertight, adjustment-free seal without binding.

BREECH-LOCKED NOZZLES—Interlocked and calked to prevent blow-out.

NON-KINKING CHAINS—Attached under each individual nozzle.

SAFETY STEM COUPLING—Breaks apart without bending the stem. Repaired in minutes without digging and with no loss of water.

SAFETY FLANGE—Separates cleanly on impact to prevent damage to barrel. Can be restored without shutting off water.

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. . . TAMPERPROOF
. . . TRAFFICPROOF
. . . MAINTENANCE-FREE!

Once set, you can forget about a Mueller Improved Hydrant. With little or no attention, the Mueller Hydrant is ready for action in any weather.

COMPRESSION-TYPE MAIN VALVE—Positively closed by water pressure. Of special wear and damage-resistant material. Permits repairs without shutting off water.

BRONZE SEAT RING—Straight threads, with copper-asbestos gasket, permits easy removal.

DOUBLE DRAIN VALVES—Empty barrel completely. Flushed with each use.

BRONZE CAP NUT—Locks stem and seals threads against corrosion.

Write for complete information and specifications.

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AUGUST 1961

The American City

A Buttenheim Publication

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

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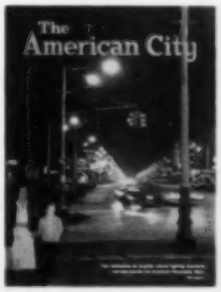

Downtown at night looks like daylight in Wyandotte, Mich., even to the color-corrected lighting that allows color combinations to have their true sunlight appearance. And old light poles that once supported trolley cables now have fresh colors that brighten the area.

However, these are only a part of the improved street-illumination program designed by Carl Bufe, superintendent of the city's Municipal Service Commission. Other details that reflect his insistence on care and thoroughness, he describes in his article appearing on page 130.

Outdoor telephones give your citizens 24-hour convenience and protection

He misses the last bus, and he has to call a cab.

She has a flat tire, and she needs to call a service station. The show ran late, and they want to call the babysitter.

At night, outdoor phones are as welcome to your citizens as street lights. Outdoor phones are always open. They hear your citizens' voices when your streets are silent.

Outdoor phones give this same kind of convenience and protection during the day, too. And they give your city extra revenue—without adding one cent to your municipal taxes.

There are three handy types of outdoor phones—the Airlight Booth, the Walk-Up Phone and the Drive-Up Phone.

To learn how your city and citizens can profit from them, just call your local Bell Telephone Manager. He'll promptly arrange for a custom-designed telephone plan for your city. Our services are free and are offered without obligation.

BELL TELEPHONE SYSTEM

Volume 76 Number 8

The American City

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ASSOCIATED PUBLICATIONS

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Municipal Index	MART	AMERICAN SCHOOL AND UNIVERSITY

What the Housing Bill Means for the Nation's Cities

By Dr. ROBERT C. WEAVER, Administrator
Housing and Home Finance Agency

The Housing Act of 1961 offers us the greatest opportunity we have ever had to move forward in housing and urban affairs.

Our first and most basic goal is still today, as it has always been, the achievement of "a decent home and a suitable living environment for every American family." We are now able to pursue that goal with more effective housing tools than ever before, and to use them in the context of a national program to achieve a type of urban redevelopment which was never before possible.

Urban Renewal

To cities with the imagination and energy to undertake urban renewal, there will be available over the next four years an additional $2 billion in federal grants, as much as has been used in the past 12 years.

Now for the first time cities can put urban renewal on an orderly long-range budget basis and plan with greater flexibility. The proportion of urban-renewal funds available for non-residential projects is now increased from 20% to 30%.

With new authority to designate land in an urban-renewal area specifically for moderate-income housing and to sell the land at a price that will produce that housing, we can now work towards balanced communities within the scope of urban renewal.

Coordinated Planning

New opportunities for coordinated planning will be possible. The federal government's share of the cost of urban and metropolitan planning is increased from one-half to two-thirds, to put it on the same basis as other aspects of urban renewal. Increased emphasis will be given to community-renewal plans and to the orderly scheduling of renewal activities.

New dimensions have been added to urban planning and development by provisions in the 1961 Act bearing on two of the most complex of urban problems—the disappearance of open space and the inadequacy of present means of mass transportation.

Limited grants are now available to help communities reserve the open-space land necessary for orderly and balanced future development.

For urban transportation, a first-step program of planning assistance, demonstration grants, and project loans represents a temporary measure while study continues toward recommendations for a suitable federal program.

Housing

The broad measures in the Act providing for the needs of cities and of metropolitan areas are balanced by those directed towards the needs of people for good housing, particularly for those needs that have been long neglected. In this new, enlarged program—

We will have an additional 100,000 public housing units for our lowest-income families.

We will have a program of FHA financing making it possible for the first time for families just above the public-housing income level to buy or rent good housing.

We will have, through insurance of long-term rehabilitation loans, the opportunity to reclaim and preserve the vast treasury of the basically sound but deteriorating housing which has built up in our cities over the past 200 years.

We will have, at last, through mortgage insurance at interest rates below the private market, the means of building apartments in our cities for moderate-income families.

Senior Citizens

And we will have a program of direct loans to finance housing for our older citizens that can go forward on a scale large enough to be meaningful for them.

These are some of the main features of the Housing Act of 1961. With the new tools it provides, we are now equipped as we have never been before to work towards those goals which we have set forth for so long. ◄◄

Solvex kills objectionable odors fast, helps make sewage systems good neighbor systems. Solvex Concentrate is even more efficient when used in lift stations . . . controls the growth of sulphide producing microorganisms . . . prevents spread of fungi . . . cuts slime and grease deposits. Does not affect B.O.D. Simply dilute with water and apply Golden Solvex Concentrate near source of odor for dramatic, long-lasting control!
For on-the-spot assistance, see the man from National Chemsearch. He's a well trained specialist, backed by one of the finest research staffs in the industry. Write for detailed information.

"A SEWAGE PLANT WITH NO ODOR! HOW DO YOU DO IT?"

NATIONAL CHEMSEARCH CORP.

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PLANT OPERATORS WHO USE SOLVEX CONCENTRATE NEVER HAVE ODOR PROBLEMS

The Newburgh "Revolution"

Twice in the last decade, the Hudson River Valley city of Newburgh, N. Y., has made municipal history. It did so first by its participation in the famous fluoridation experiment to protect its children's teeth, which was phenomenally successful. And it has done so a second time by adopting its highly publicized "13 points" which impose curbs on welfare recipients. Interestingly enough, opponents of fluoridation like to label Newburgh's action as "socialistic" and critics of the present measures to curb what the city feels are welfare abuses call it "right-wing reactionary."

Newburgh's "decision to revolt" arose from the easy shifting of population, characteristic of life in this country today. Fruit growers in that area imported migrant workers during the harvest season, providing travel pay to and from their homes. But like other migrants, they came, they liked the community, and many decided to stay. However, since migrants do not occupy a particularly high rung on the economic, educational or social ladder, an uncomfortably large proportion went on relief, crowded into old homes, creating new slums, with the attendant evils of crime and vice.

Unfortunately, most of these migrants are Negroes or Puerto Ricans. John Steinbeck's migrants in his "Grapes of Wrath" were white. But Newburgh's migrants face a language barrier and racial complications with their emotional overtones.

All of this is an old story repeated in almost every large major city in the North. One way or another, these cities are learning to live with it, although the path to a more stable urban life during this transition has been hard and at times heartbreaking. Any city official in these larger urban centers can relate experiences that makes one wonder about the human race. But when people emerge from the vicious squalor of these rural slums, it takes time for them to adjust to an urban environment—often a long time.

The difficulty is that this problem, which really is national in nature, falls on the backs of local governments. In New York, state and federal assistance meet 55% of Newburgh's welfare costs. But even with this assistance, Newburgh had to budget $423,810 out of its general tax fund. This is more than it spent on police protection and almost as much as the budget for fire protection, or public works. Moreover, City Manager Joseph McD. Mitchell found that the problem of blight in his downtown area was growing at a rate that appeared well beyond the ability of this little city to check.

Furthermore, he dislikes what he calls the "untouchable" attitude of public-welfare operations. The city no longer has control over this municipal department, he feels. Instead, he finds it dominated by state and federal policies that nullify any action by the local government.

Finally he became restive over the fact that 23 Newburgh families on relief receive more pay than the $242 monthly salary of a patrolman on the city's police force. Nor did he like the fact that some recipients apparently adjusted to relief as a way of life, remaining on it for as much as five years; and that unwed mothers receiving relief payments continued to have children by unidentified fathers.

The corrective measure, he and the city council feel (the mayor does not agree), is to make public relief less attractive in Newburgh. To do this, they drew up their news-making 13 procedural changes in welfare administration. Some of the more pertinent are:

that all able-bodied adult males on relief be assigned to city work on a 40-hour week basis.

that mothers of illegitimate children who have more children out of wedlock shall be denied relief.

that, if the home environment of families on relief is not satisfactory, the children in that home shall be placed in foster care in lieu of welfare aid to the family adults.

that the allotment for any one family unit shall not exceed the take-home pay of the lowest-paid city employee with a family of comparable size. Also, no relief will be granted to any family whose income exceeds this figure.

that applicants for relief new to the city must show that their coming involved a concrete offer of employment. Relief for such applicants will be limited to two weeks. Relief for those who cannot show evidence shall be limited to one week.

that aid for persons except the aged, blind and disabled shall be limited to three months in any one year.

One has to admire Newburgh's forthrightness. The city expresses its willingness to help those who it feels have a real need. But it does not wish to make liberal relief payments one of its civic drawing cards. Conservatives, (so-called, and we always are suspicious of these labels) such as Senator Barry Goldwater, who was once a city councilman, praise the action as a "breath of fresh air." Liberals, such as Governor Nelson Rockefeller, view it gingerly. Negro organizations have denounced it and certain apparently anti-Negro groups have praised it.

Nevertheless, the points are controversial. Despite these rules, Newburgh is too humane to permit anyone to starve. And its officials are realistic enough to know that the rules will not deter the unwed mothers from continuing to give birth to children who will have an unhappier start in life than animals in the woods. Also, they are wise enough to know that placing these luckless children in foster homes is easier said than done.

The Newburgh "revolution" (and Newburgh definitely has no intention of breaking existing laws) nevertheless is one of the interesting patterns in the fast-changing urban fabric of this vigorous nation.

It is a reminder also that few if any nations in mankind's history have faced problems of assimilation as emotionally complex and has solved them as well as this nation has done in the past and is doing today.

The Pacesetter Of Modern Refuse Handling Systems

MARION ANNOUNCES **THE NEW HYDROPAKA** Model Q COLLECTION BODY

Comments From One Private Refuse Contractor Who Has Test-operated 7 Hydropakas For 7 Years, Handling 1500 One- And Two-yard TrashTainers With 3 Packers.

COMMERCIAL & INDUSTRY

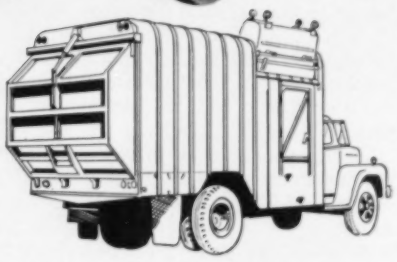
• Fastest Unit On The Market • One man can handle an average of 100 one- and two-yard containers daily on commercial pickup

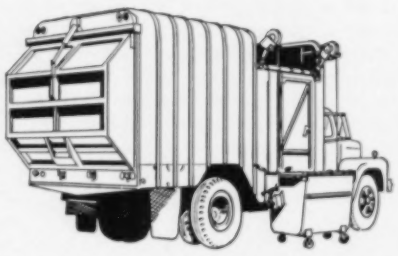
RESIDENTIAL • Two men service between 800 and 1000 homes daily on residential pickups

QUALITY BUILT • Dumping a container takes 10 to 12 seconds • Mechanized loading from either side saves valuable time and operator fatigue • Hydraulically compresses an average of 70 yards in a 28-yard body • Compresses automatically while operator picks up another container for dumping • Handles anything — paper, glass, wood, metal, garbage • Sanitary, watertight, simple and safe operating unit • 7 years of private use and development is now incorporated in Marion's new Hydropaka

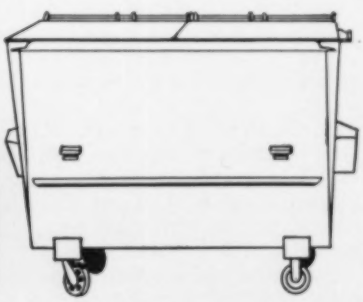
Write for a new bulletin on Marion's TrashTainer System

MARION METAL PRODUCTS COMPANY
Marion, Ohio, U.S.A.





The TrashTainer is quickly and easily locked on either side of Hydropaka and is hydraulically elevated to dump refuse. It is leakproof, corrosion-resistant steel construction. One- and two-yard capacities. Rolls on ball-bearing, rubber-tired casters. Spring loaded top cover eliminates rodents, insects, spillage and odor.



BODIES AND HOISTS **MARION**

Circular Ramp Conserves Space

The circular approach provides a practical solution to the problem of cramped quarters.

A new pedestrian bridge at the University of Iowa in Iowa City has college students going around in circles. The lack of sufficient lateral space prompted Iowa Highway Commission designers to create a spiral approach ramp for adequate vertical clearance over busy Highway 218.

Because the Iowa River so closely parallels the highway, some parts of the eight-foot-wide walkway actually extend beyond the river bank. A center pylon post of reinforced concrete sprouts arms which support the pedestrian deck. The circular approach to the 350-foot-long bridge measures 44 feet in outside diameter. Howe Engineering fabricated the aluminum railing for R. J. Vickery, the general contractor.

The circular ramp design has proved to be practical for urban areas where land is not available or is too expensive for normal approaches. ◄◄

Seal Coating Accentuates the Positive

Experiments with a new type of asphalt for seal coating are proving highly successful this spring and summer in Minneapolis, Minn. The new material is American Bitumuls Cationic Emulsion RS-3K, which attracts negatively charged chips to the positive charge in the asphalt.

Cold, moisture and insufficient curing time are well-recognized as bitter foes of seal coats but these are all restrictive factors which specifications govern. The new emulsion is a constructive factor that joins the asphalt to the aggregate with a stronger bond and thus reduces the incidence and the degree of failure.

Application rates include 0.21 of a gallon and 21 pounds per square yard. A distributor applies the asphalt at 150°F. The aggregate, granite chips from St. Cloud quarries, contains 65% to 70% silica and has a maximum size of $\frac{3}{8}$ inch. Some aggregates, notably limestone, have positive charges and repel rather than attract this type of asphalt.

Minneapolis' bituminous streets receive a seal coat about every six years. New mats acquire one immediately.

EARL J. EVANS, *Engineer of Tests*
Minneapolis, Minn.

The distributor sprays new asphalt at the rate of 0.21 gallons per square yard.

A few minutes after the aggregate is applied the rollers are at work compacting it.

The 2 yd. 105 HP (flywheel) 944 Traxcavator—Proven by seven years of testing and widely accepted after a year in the field, this machine offers the Cat power shift transmission for instant shifting, forward and reverse, 1st and 2nd speeds. Other wheel loaders include the 2¾ yd. 966 and 1¼ yd. 922. Also available is a line of track-type loaders; the 2½ yd. 977, the 1¾ yd. 955, and the 1⅛ yd. 933.

CATERPILLAR REPORTS

HOW TO GET MAXIMUM MACHINE VALUE THROUGH BEST BID BUYING

Many communities have laws requiring lowest bid buying. Unfortunately, this intended protection of public funds collapses when applied to construction equipment.

Supervisor Bernard Amell, of the Plattsburgh, N. Y., Town Board, explains the realities of equipment buying this way: "The accepted machine cost figure must include not only the initial price tag but also the more important items such as fuel and oil consumption, ease in servicing, maintenance costs, final trade-in value, and source of replacement parts and service to eliminate down time. Failure to include these charges is hiding the true costs of the machine from the public."

When all these factors *are* included, this is Best Bid buying. It's Best Bid because it's real; it's Best Bid because the lowest *total* cost is best for taxpayers.

HERE ARE REPORTS FROM COMMUNITIES WHO BOUGHT ON BEST BID BASIS:

Vermont Division of Highways When this state organization began keeping records on two motor graders purchased in 1950, they found that the machine that cost more initially proved to be the best buy in the long run because it cost nearly $8000 less to operate over a nine-year period.

Harrison County, Indiana Accurate, by-machine cost records showed that a year-old Cat No. 12 Motor Grader required only a set of head gaskets and two spark plugs, with $25 labor, in one year. Two new machines of another make required major engine repairs, new clutches and side shift linkage during the same period.

Plainview, Texas This city kept operating costs on a Cat No. 212 Motor Grader and found that it

The 100 HP No. 112F—This new turbocharged motor grader will earn its keep in constant availability and low operating costs. It features the proven oil clutch which gives up to 2000 hours of operation without adjustment. The No. 112F is one of the four models available from 85 to 150 HP.

The 93 HP D6B Tractor—Featuring a Cat D333 Engine with unusually high lugging ability, this versatile tractor typifies the quality of Caterpillar-built equipment. The proven oil clutch, dry-type air cleaner, and lifetime lubricated track rollers help keep this one on the job with a minimum of servicing. Caterpillar's range of five tractor sizes extends from 52 HP through 335 HP.

cost only $100 for repairs over five years. On a Best Bid basis, they recently bought a Cat 955 Traxcavator.

Escambia County, Florida Machines purchased on a Low Bid could not be put back in operation quickly because it took a week or longer to get parts. Now, buying on a Best Bid basis, city officials feel the savings in upkeep will more than offset the initial price differences.

Dallas County, Texas Purchasing agents awarded the purchase contract to the highest bidder. They bought the higher price machines when the records proved that the low-price machines would cost over $12,000 more to operate over a ten-year period.

Plattsburgh, New York In addition to the long life of Caterpillar equipment, this city considers immediate availability of parts and services as part of the low cost of buying on Best Bid basis.

INITIAL COST • OPERATING COST
DOWN TIME • RESALE VALUE

When all these factors are taken into consideration, public and government officials all over the country have discovered that this Best Bid approach to purchasing points to Caterpillar. Some of the reasons are dependability, lower repair costs and fewer of them, top performance and high resale value of the Cat-built machines.

Individual machine cost records prove that Caterpillar equipment working on governmental jobs means more savings to taxpayers. See your Caterpillar Dealer for such records on jobs in your area. He'll also be glad to give you Time and Cost Record Books which allow you to keep individual records on your own machines.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U. S. A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

QUALITY-BUILT MACHINES
—LOWEST TOTAL COST

On the day of the Indianapolis "500"

HARLEY-DAVIDSON police motorcycles

Highly maneuverable Police Solos are part of a well-coordinated ground and air traffic control plan that moves nearly 50,000 vehicles to-and-from the site of the famed 500-mile race — smoothly, quickly, safely.

They descend on the Motor Speedway like some great army on the move — automobile race fans by the hundreds of thousands. You expect them to overwhelm the city. They don't. Indianapolis is ready for them on race day.

In the air, two planes with traffic spotters methodically circle the area surrounding the world capital of big car racing. Over the Speedway an observer helicopter hovers. In the 80-foot control tower inside the Speedway, Indianapolis Police Department and state police department traffic experts wait to dispatch motorcycle officers to reported tie-ups.

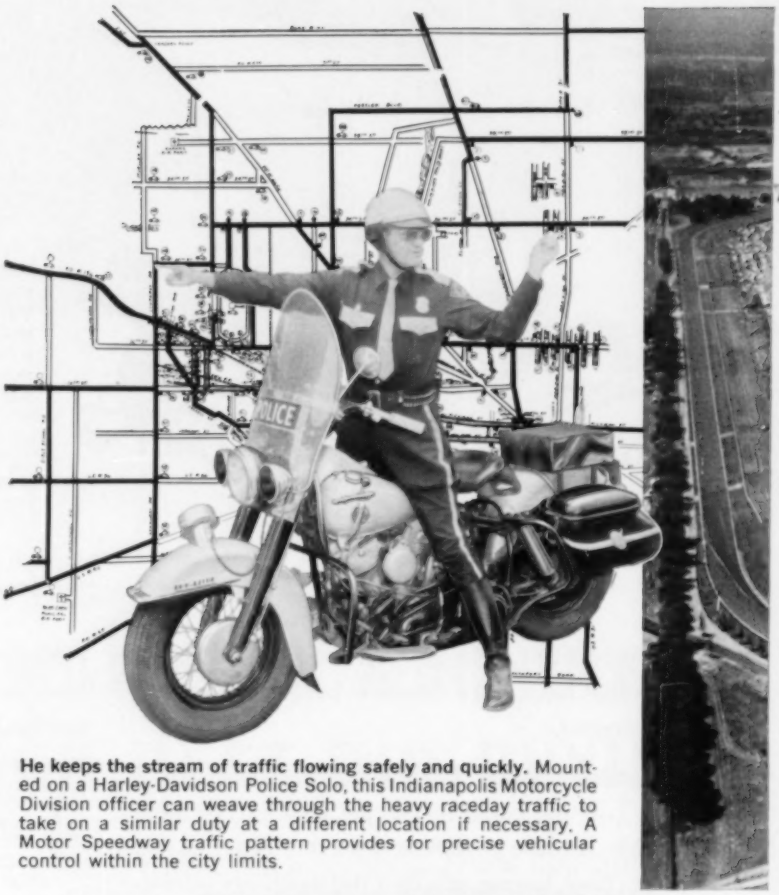
One highway accident, for example, backed up traffic 16 miles. An aerial spotter sighted it and relayed the information to the control tower. A. E. Jacobs, Inspector of Traffic for the Indianapolis Police Department, quickly directed officers to re-route some city traffic. The bumper-to-bumper snag cleared in minutes.

Harley-Davidson police motorcycles play a key role in this outstanding Indianapolis traffic control plan. "Speed and mobility in an operation of this type are imperative," Inspector Jacobs points out.

"Give a good motorcycle officer a three foot space and he will get through," he says. "Motorcycles are there when you want them!"

The Indianapolis Motorcycle Division has 82 Harley-Davidsons. Ten more will be added at a future date.

"Our Motorcycle Division is not only used for traffic and law enforcement. We also find them invaluable for escort duty and in emergencies," Inspector Jacobs says.



He keeps the stream of traffic flowing safely and quickly. Mounted on a Harley-Davidson Police Solo, this Indianapolis Motorcycle Division officer can weave through the heavy raceday traffic to take on a similar duty at a different location if necessary. A Motor Speedway traffic pattern provides for precise vehicular control within the city limits.

Here's the board of strategy for the smooth-working Indianapolis traffic control plan. Police Chief Robert E. Reilly is seated. Standing left to right: Lt. William Cole, of the Motorcycle Garage; Lt. Omer Lloyd, Motorcycle Division officer; and Inspector of Traffic, A. E. Jacobs. Police Chief Reilly is proud of his Motorcycle Division. "It makes a tremendous contribution in crowd control, traffic control and law enforcement generally," he says.

help head off a traffic nightmare

Joseph Quinn, Safety Director of the Indianapolis Motor Speedway, and Indiana State Police Officer, Captain Alva Funk, receive a traffic report in the 80-foot control tower inside the Speedway. Safety Director Quinn reports he also employs 25 Harley-Davidsons on race day to control parking in and out of the Speedway.

"The largest parking lot in the world," is the way Inspector of Traffic A. E. Jacobs describes the Indianapolis Motor Speedway. There are 39,000 cars parked inside the track area (after the race, they will be cleared in just two hours). From 8 to 10,000 more cars park outside the track. Busses and cabs also add to the enormous Speedway traffic.

Send for a free copy of the new Harley-Davidson Police Motorcycle brochure. This handsome 12-page brochure covers both the versatile Harley-Davidson Police Solo and the all-purpose Police Servi-Car. Write to Harley-Davidson Motor Co., Milwaukee 1, Wisconsin. Dept. AC-8.

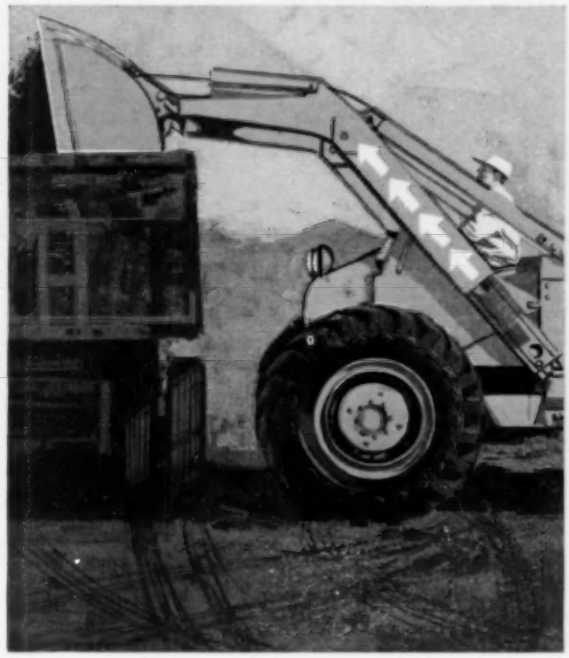
HARLEY-DAVIDSON

Police Motorcycles

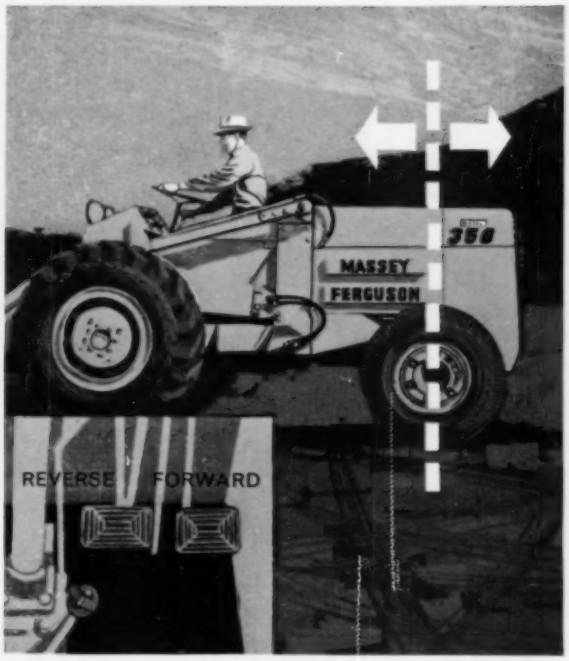
MASSEY FERGUSON INDUSTRIAL EQUIPMENT

This new diesel-powered Massey-Ferguson 356 Shovel-Loader is designed to increase your speed (and your profit) on all your loading and handling jobs. Creatively engineered by the world's largest tractor manufacturer, the MF 356 is a one-cubic-yard loader that gives you big capacity without sacrificing mobility. Massey-Ferguson's own fuel-saving, 4-cylinder, 55 HP diesel provides power-to-spare you can depend on. Plus "telescopic reach" lift arms and Instant Reverse (see opposite page) that make the big difference when dollar-saving speed counts.

NEW DIESEL Shovel Loader! Engineered for high-speed loading at low cost!

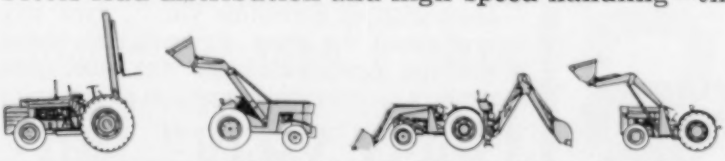


Massey-Ferguson's new diesel 356 Shovel-Loader features exclusive "telescopic reach" lift arms that raise 5000-lb. loads to full 8' dump height faster than ordinary hinged lift arms can. There's no loss of lift power either . . . even when the load nears the top of the lift cycle. Close-in loading is a snap too, because of low draft line of arms. See "telescopic reach" in action today!



Exclusive Instant Reverse on the MF 356 eliminates on-the-go shifting, clutching and pulling of levers. You go forward . . . reverse . . . smoothly (gear speeds up to 19 MPH) at the touch of a foot pedal. You maneuver in crowded work sites quickly. Cycle time between dump and load is fast. You make more profit, more progress with M-F's Instant Reverse and torque converter.

Some other things you'll want to know: Massey-Ferguson's new diesel 356 Shovel-Loader develops 9000-lb. pryout capacity . . . has 43° rollback at ground level. Handles a variety of quick-change attachments for dozens of specialized jobs. Power steering and Instant Reverse with torque converter is standard equipment. See this Loader in action. Know why it gives you more—maximum pryout capacity...cleaner dumping... better load distribution and high-speed handling—than any other loader in its class.



NEW KIND OF ENGINEERED
DEPENDABILITY PAYS OFF IN PROFITS

Massey-Ferguson Industrial Division
12601 Southfield Road, Detroit 32, Michigan

SEE YOUR NEARBY MASSEY-FERGUSON DEALER TODAY!

SAVE $414 per truck IN THE FIRST YEAR!

NEW FORD ECONOLINE VANS

Now, *you can save $312 to $433 in price* alone* on a Ford Econoline Van compared to the leading conventional half-ton panels. In addition, you can save over $100 every 16,000 miles you drive!

These savings come with a man-size truck. The Econoline's cab-forward design with welded "body-frame" gives bridge-like strength and reduces dead weight to haul over ¾-ton. Only 14 feet overall, Ford Econolines are nimble in traffic, easy to park, need less garage space. Big 4-ft. door opening (both curbside and rear) and level cargo floor provide new loading ease . . . new load workability.

Special Note To Pickup Owners: Now, you can protect your loads from weather and theft with an Econoline Van . . . yet, pay less* than for most conventional ½-ton pickups. And you can get the same $102 savings on operating expenses as shown at the right.

**Based on a comparison of latest available manufacturers' suggested retail prices*

HERE'S HOW YOU SAVE

SAVINGS ON OPERATING EXPENSES EVERY YEAR!

GAS—Econoline trucks can give 30% better gas mileage than conventional ½-tonners. Figuring 16,000 miles per year at prevailing gas prices, you save..... **$70**

OIL—Crankcase capacity is only 3½ quarts instead of 5 quarts, and the recommended oil change interval is 4,000 miles versus 2,000 miles. In 16,000 miles you save..... **$13**

TIRES—Econoline tires last longer, cost less to replace. Prorated saving for 16,000 miles as high as $53. Typical saving..... **$16**

LICENSE—In many states (not all) the license for an Econoline costs appreciably less—up to $30.40 per year. Average for all states is..... **$3**

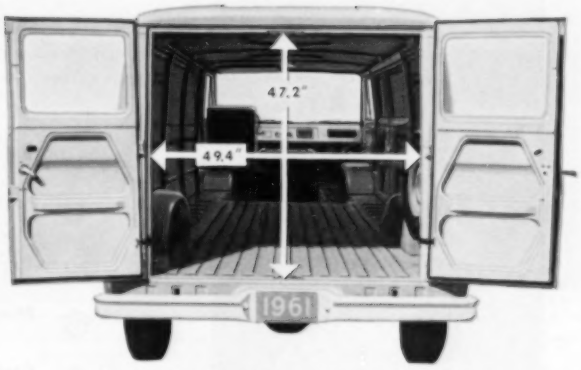
$102

SAVING ON PRICE—You can save $312 compared to even the lowest-priced popular ½-ton panel—and up to $433 against others! Saving at least..... **$312**

TOTAL FIRST YEAR SAVINGS... $414

and you keep saving

$102 EVERY YEAR!



NO REAR ENGINE HUMP!

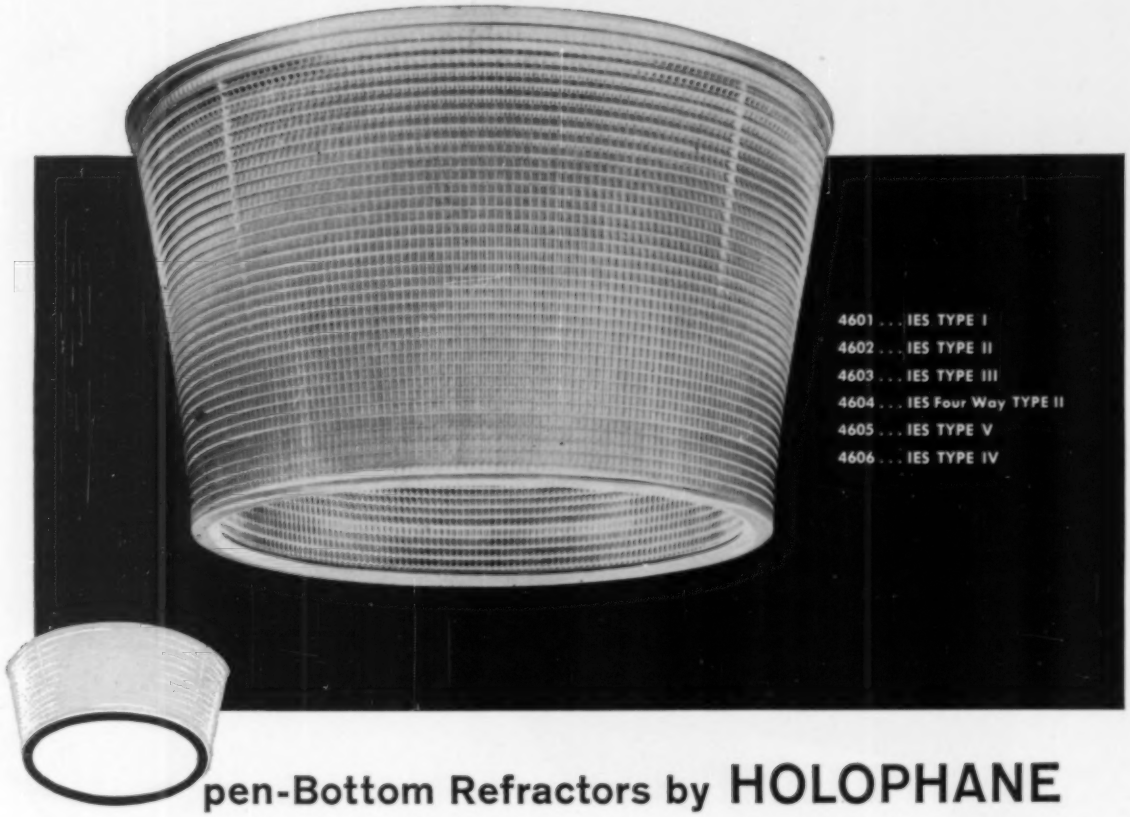
The Econoline's "up front" engine leaves a level, knee-high floor almost 9 ft. long. There's no awkward rear-engine-housing hump to shrink the back entrance or hinder loading. And the Econoline Van provides over 204 cu. ft. of loadspace . . . up to 80 cu. ft. more than conventional ½-ton panels.

FORD TRUCKS COST LESS

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!

FORD DIVISION, Ford Motor Company

Outstandingly Successful!



Open-Bottom Refractors by HOLOPHANE

Engineered Expressly for JOSLYN Luminaires...

The continuing population swing to the suburbs and the rapid expansion of new residential areas have brought the need for a specific type of street lighting. HOLOPHANE Open-Bottom Refractors meet the demand with excellent performance and precise light control. These prismatic glass refractors are durable, impervious to weather, resistant to thermal shock, offer a crisp modern appearance.

Residential and Suburban Streets • Shopping Centers • Parking Lots • Industrial Yards • Housing Developments • Institutional Grounds •

Check these 5 Important Advantages:

1. ***High Utilization Efficiency*** . . . Prismatic control puts more light on street or roadway.
2. ***Wide Distribution*** . . . Correct, precise distribution spreads light over wider areas.
3. ***Effective Glare Control*** . . . Accurately molded prisms direct light away from upper glare zones.
4. ***Greater Economy*** . . . Less units needed for maximum light . . . More illumination per dollar.
5. ***Easy, Low-Cost Maintenance*** . . . Open bottom permits simple, quicker relamping and cleaning.

Write for 24 Page Book on "Street Lighting Design and Application."

HOLOPHANE COMPANY, INC.
Lighting Authorities Since 1898
STREET LIGHTING DEPT., NEWARK, OHIO
THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 14, ONTARIO

P. H. Van Orden, President, C. L. Peterson, Vice-President and Treasurer, and R. H. Webb, Foreman of the Van Orden Company, Contractors, of Grand Rapids, Mich., supervise the installation of "K&M"® Asbestos-Cement Sewer Pipe at Paw Paw, Mich.

10,000 FT. OF SEWER PIPE LAID...

. . . not enough infiltration to measure

Read how the Van Orden Company solved the problems of installation and of infiltration when pipe had to be laid 9 ft. below the water table.

"the ease of handling and assembly saved us dollars and time!"

P. H. Van Orden

"Construction of the Paw Paw trunk sanitary sewer called for installation of pipe at depths up to 19 feet, where water table was at 10 feet. Infiltration had been the major problem in other sewer installations in the area. We solved this problem by using "K&M" Asbestos-Cement Sewer Pipe with its FLUID-TITE joint. With 10,000 feet of sewer in, we haven't had enough infiltration to measure.

"The longer laying lengths and the speed with which a joint can be made are definite time-saving factors, which have added to our production. Less time spent grading pipe and handling material means dollars saved."

Rigorous tests prove "K&M" Asbestos-Cement Sewer Pipe is infiltration-tight at 25 psi . . . a pressure equivalent to that of a 58-foot head of water.

"K&M" Asbestos-Cement Sewer Pipe wont rust, rot, or corrode. Its smooth bore remains clean, permanently. Flatter grades are possible. Fewer lift stations are required.

Maintenance-wise, the village of Paw Paw, Mich., will enjoy tax savings. "K&M" Asbestos-Cement Sewer Pipe is practically indestructible. Requires fewer inspections, because root growths do not penetrate the exclusive FLUID-TITE coupling.

Write today for more information on "K&M" Asbestos-Cement Sewer Pipe to: Keasbey & Mattison Company, Ambler, Pa.

Keasbey & Mattison at Ambler

K·M BEST IN ASBESTOS

Two-step assembly! Lubricate the tapered end of "K&M" Asbestos-Cement Sewer Pipe, then slide it into the exclusive, patented "K&M" FLUID-TITE® Coupling.

Light weight reduces shipping and handling costs...saves on installation time. At the same time, there's a minimum of wastage and breakage on the job, with tough "K&M" Asbestos Sewer Pipe.

Letters To the Editor

Snow Melter

We noted the article in your June issue, about the snow-melting evaluation study currently underway by the Department of Sanitation, City of New York ("New York City Studies a Snow Melting Truck," p. 197).

In the last paragraph you mention similar stationary snow-melting equipment used by parking lots and LaGuardia Airport in New York City.

We would like to point out that it has been equipment manufactured by Thermal Research & Engineering Corp., which has been utilized over the past three years in several parking lots and airport installations, including LaGuardia. The principles involved in the snow-melting action with our equipment are quite different to those used in the mobile melter mentioned in your article. We use hot water for melting the snow but the water is heated by the application of submerged combustion.

W. K. LOMBARD
Vice President
Thermal Research & Engineering Corp.
Conshohocken, Pa.

Council and Manager

City Manager Mitchell's advice, "What a City Manager Should Do for His City Council," (May 1961, p. 144) is very instructive.

We plan to include it in our Councilman's Handbook.

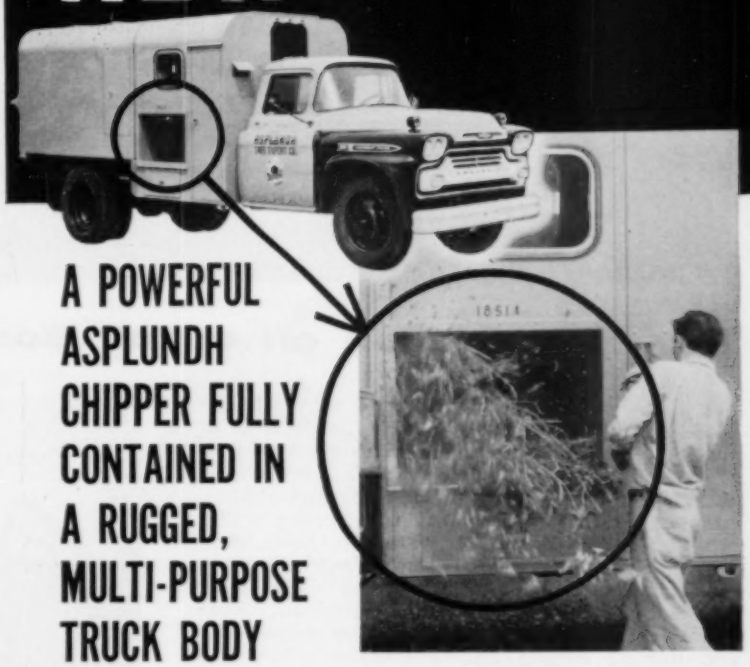
NANCY MANNERS
Administrative Secretary
Covina, Calif.

No Indiana General Assembly

The State of Indiana apparently has no legal General Assembly, according to a ruling of Judge John Linder of the Superior Court. The General Assembly's failure to comply with the terms of the constitution and reapportion its membership according to proportional representation has deprived itself of the authority to act.

An attempt will be made prior to the primary election in May 1962 to mandate the state conventions of both political parties to nominate 100 representatives and 50 senators to be elected at large in the general election of 1962. ◄◄

NEW Especially designed for municipal use...



A POWERFUL ASPLUNDH CHIPPER FULLY CONTAINED IN A RUGGED, MULTI-PURPOSE TRUCK BODY

Compact, durable, easy and profitable to operate, this completely integrated truck and chipper unit is the most economical answer to municipal brush disposal requirements.

Especially maneuverable in restricted road nets, back alleys and dead-end streets, this new multi-purpose truck unit offers exceptional convenience for all the activities attendant to efficient brush removal. In addition, it is perfectly suited to all types of tree maintenance operation . . . safe, comfortable transportation for personnel and materials.

Fully equipped with a powerful, easy-to-maintain chipper unit (9″, 12″, 16″) and hydraulic dump mechanism, its entire design of operation has been engineered for efficient, trouble-free service by the largest tree company in the world.

As exhibited at American Institute of Park Executives, Phila., Pa. 1959 and the National Shade Tree Conference, Detroit, 1959. along with Asplundh aerial equipment, standard model chippers, and other forestry truck bodies.

ASPLUNDH CHIPPER COMPANY

HAMILTON ST., CHALFONT, PA.

For complete information and specifications about any Asplundh equipment, write –

BY ACTUAL TEST THE FASTEST CHIPPER MADE

Four men, a chipper and two trucks constitute a brush-collection unit capable of making up to 60 brush calls each eight-hour day.

Brush Collection on a Call Basis

A phone call brings brush-removal service to the householder in San Antonio, Texas. Business is so good that it takes six crews, plus some additional help at times, to keep up with the demand. However, the effort is worthwhile for it results in a cleaner city.

The city started the brush-collection service in 1955 using stake-body trucks. Prior to that, small trimmings were worked into regular garbage collections and larger limbs and tree trunks were hauled away by the home owner or a private contractor. Some service had to be provided for the combination of a semi-tropical climate and over-enthusiastic home beautifiers resulted in phenomenal quantities of yard refuse. Ordinances prohibited disposal by burning at the homes.

The public responded so favorably to this service, provided by our street-cleaning division, that in 1960 the city purchased six Asplundh chippers with 16-inch blades to cope with the increased load and longer hauls to the sanitary landfills. Before putting the chippers into service the Safety Division spent several days giving special instructions to the crews. Crew members wear protective equipment and injuries have been few and minor to date.

The city is divided into three areas or service zones to provide better service to the citizens. Each area has an office building, automotive repair shops and crew quarters. Personnel in each service area includes an administrative clerk (directly responsible to the city manager), a receptionist, a public-works area superintendent (responsible to the director of public works) and other supporting help.

The administrative clerk, backed up by the receptionist, takes all calls from the public and writes work orders in triplicate. During week days each center takes brush calls from 8 A.M. to 5 P.M. but on Saturdays and Sundays only one of the centers takes such calls. These requests are then relayed to the respective crews.

The six chippers operate six days per week and the load is such that during much of the year additional help is needed. This additional help is usually provided on Saturdays by diverting trucks and crews from street-cleaning and street-maintenance activities. We make no charge for this service.

The requests for this service vary somewhat with the season as shown by the number received each month over an eight-month period.

An open truck picks up material unacceptable to the chipper.

Month	Requests
October 1960	5,008
November	5,486
December	3,924
January 1961	6,784
February	9,199
March	11,022
April	7,976
May	8,544

Each brush-collection unit consists of a four-man crew, one chipper, a truck with closed body to receive chips and a stake-body truck for trash unacceptable to the chipper. Such a unit can make up to 60 brush-collection calls in an eight-hour day. It is interesting to note that our experience shows ex-taxi drivers make the best leadmen for these crews.

W. N. Wells
Public Works Area Superintendent
San Antonio, Texas

Control sewage grease and odor with low-cost Solvay Ozene

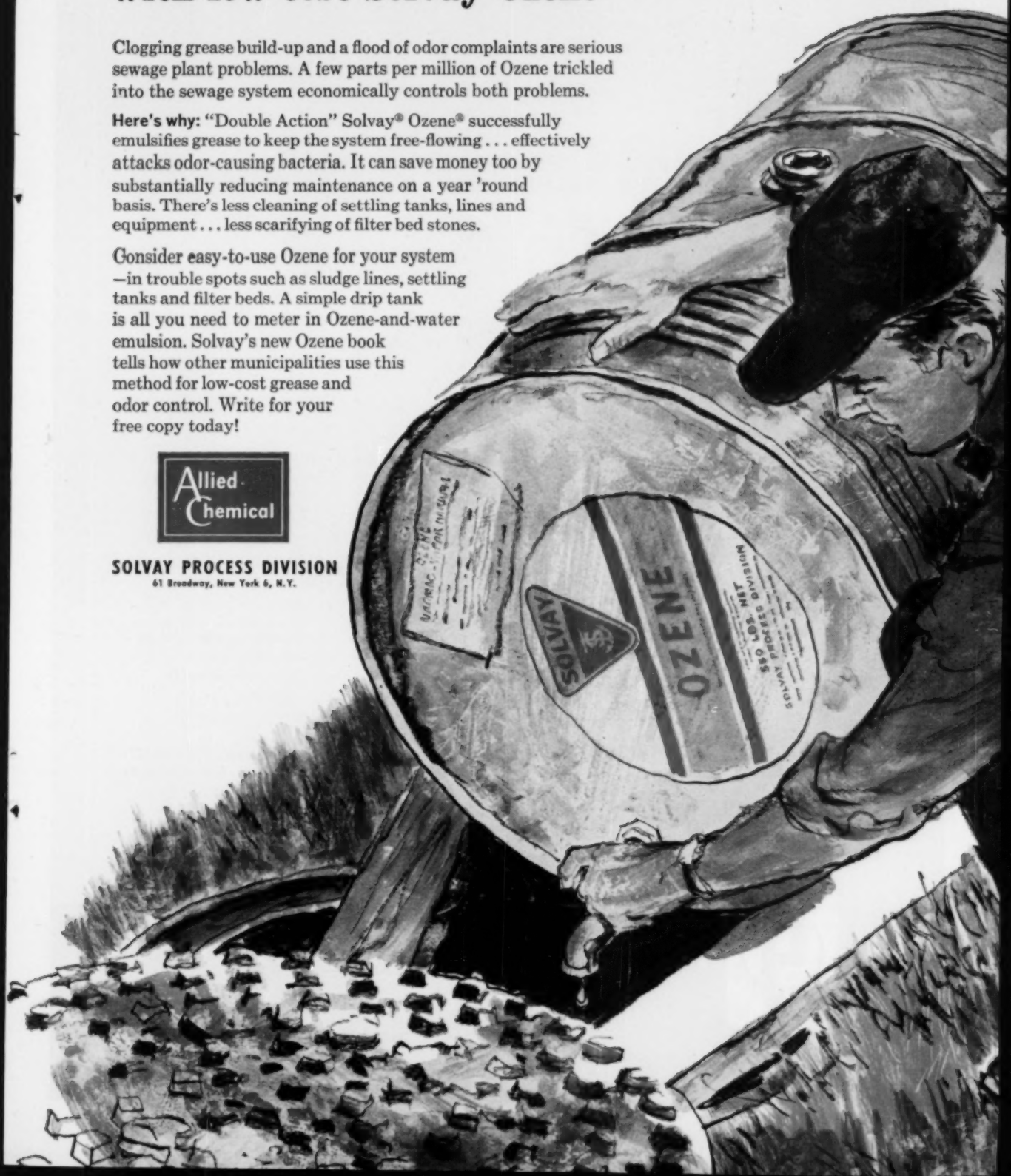
Clogging grease build-up and a flood of odor complaints are serious sewage plant problems. A few parts per million of Ozene trickled into the sewage system economically controls both problems.

Here's why: "Double Action" Solvay® Ozene® successfully emulsifies grease to keep the system free-flowing . . . effectively attacks odor-causing bacteria. It can save money too by substantially reducing maintenance on a year 'round basis. There's less cleaning of settling tanks, lines and equipment . . . less scarifying of filter bed stones.

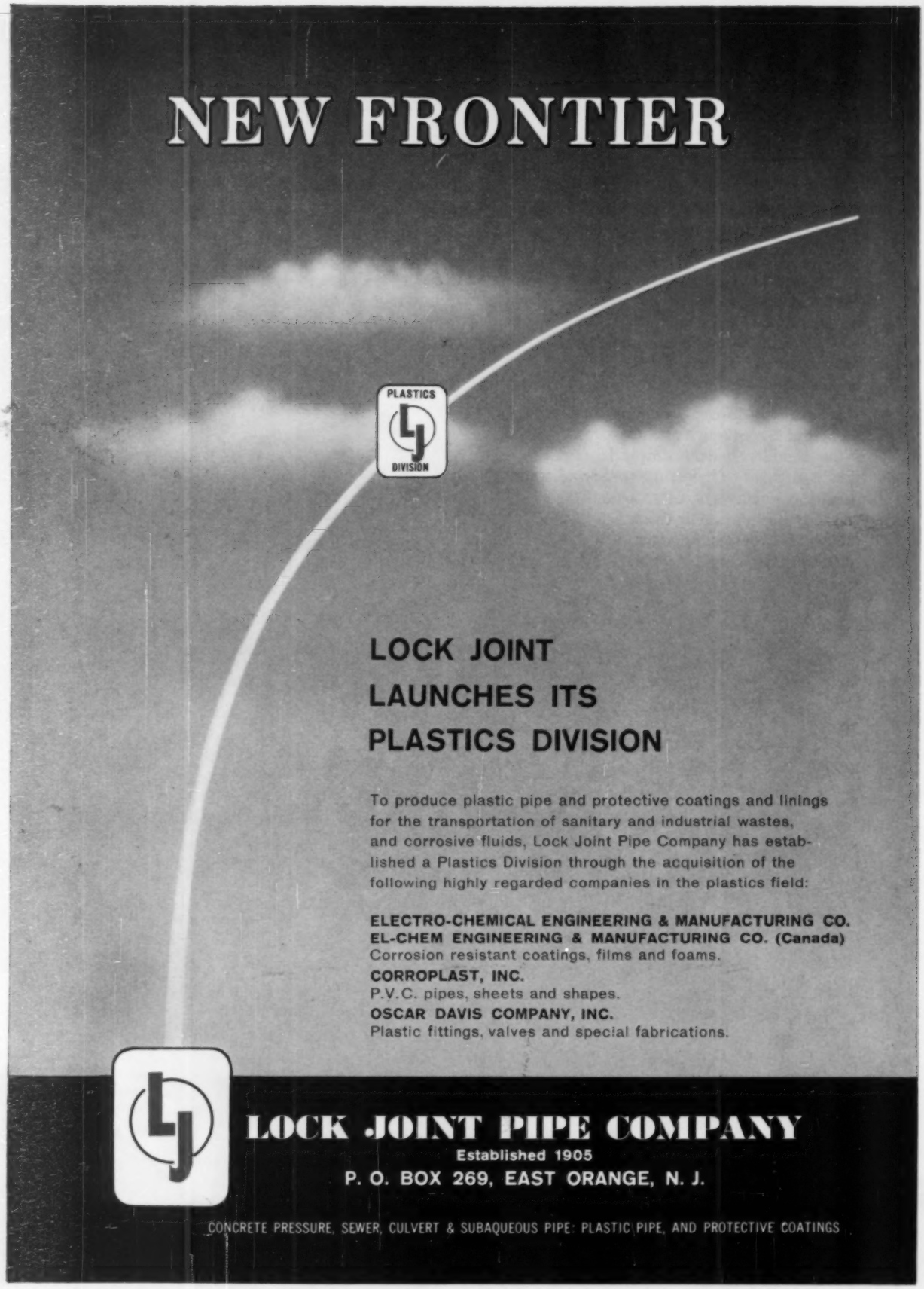
Consider easy-to-use Ozene for your system —in trouble spots such as sludge lines, settling tanks and filter beds. A simple drip tank is all you need to meter in Ozene-and-water emulsion. Solvay's new Ozene book tells how other municipalities use this method for low-cost grease and odor control. Write for your free copy today!

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.



NEW FRONTIER



LOCK JOINT LAUNCHES ITS PLASTICS DIVISION

To produce plastic pipe and protective coatings and linings for the transportation of sanitary and industrial wastes, and corrosive fluids, Lock Joint Pipe Company has established a Plastics Division through the acquisition of the following highly regarded companies in the plastics field:

ELECTRO-CHEMICAL ENGINEERING & MANUFACTURING CO.
EL-CHEM ENGINEERING & MANUFACTURING CO. (Canada)
Corrosion resistant coatings, films and foams.

CORROPLAST, INC.
P.V.C. pipes, sheets and shapes.

OSCAR DAVIS COMPANY, INC.
Plastic fittings, valves and special fabrications.

LOCK JOINT PIPE COMPANY

Established 1905

P. O. BOX 269, EAST ORANGE, N. J.

CONCRETE PRESSURE, SEWER, CULVERT & SUBAQUEOUS PIPE: PLASTIC PIPE, AND PROTECTIVE COATINGS

Workmen place the film and seal joints during the installation of the lining for a 1,500,000-gallon wastewater treatment pond covering more than an acre.

Four to six inches of sand spread over the liner protect it from sunlight and from a flow of water underneath which would force the film to billow upward.

Polyethylene-Film Liner Prevents Seepage

Actual service operations show polyethylene film to be a practical, low-cost material for the prevention of water leakage from waste control, storage and settling ponds. Installation is rapid, simple and economical.

The Dow Chemical Company's Well Department now installs a pond lined with Polyfilm (Dow trademark for polyethylene film) each time it drills a new brine well. Thirteen such film-lined ponds are already in service, each having a capacity of approximately 100,000 gallons. The film also has been used in Midland, Mich., for the lining of a 1,500,000-gallon pond in which waste water is treated.

Polyfilm is not susceptible to rot or other forms of fungicidal deterioration and is resistant to most acids and alkalis. It remains flexible to minus 60° F and is inert to soil; direct contact with water has no adverse effects on its properties. Barring mechanical damage and prolonged direct sunlight exposure, the film should last for many years.

Dow's Well Department found the following technique most successful for installation of six-mil black polyfilm as a pond lining:

1. Excavate the pond with nearly vertical walls and rake smooth on the bottom about an inch of soil or sand, removing all sharp objects such as cinders, clay chunks and sticks. Avoid objects in the base that might cause punctures.

2. Unroll the film starting at one side and then along the bottom. Work with the wind, so that the film is carried forward, and anchor the film edge with sand or soft dirt along the perimeter of the pond. Allow ample folds and slack material to prevent high-stress concentrations in the film should the sides or bottom settle slightly. Provide a lap or fold in the film at the base of the perimeter wall and adjacent to any joint between sheets of film.

3. Overlap sheets of film six to 12 inches at joints. Bond joints with black, waterproof, pressure-sensitive adhesive tape two inches wide. A polyethylene-film adhesive tape is suggested and has been quite satisfactory in service.

4. To prevent billowing and blowing, anchor all sheets of film securely around the perimeter of the pond by covering with soil free of rocks and sharp objects. Along the walls of the pond, allow sand fill to take its natural grade angle. Four to six inches of sand should be placed over the film on the bottom of the pond to prevent possible deterioration due to sunlight and to counteract any possible inflow of water.

Available in both clear and black films, Polyfilm is priced at two to three cents per square foot. The black film is recommended for outdoor applications because of superior weathering characteristics. Sheets are available in sizes up to 32 feet in width and 100 feet in length. Its light weight (enough film to cover an acre can be carried in a station wagon) provides ease of handling and installation. ◄◄

OCT. 20, 1952: 4″ SNOW—WILKES-BARRE-SCRANTON, PENN.
OCT. 10, 1954: 6″ SNOW AND SLEET—CLEVELAND, OHIO
OCT. 25, 1955: FREEZING RAIN—CHICAGO AND DETROIT
OCT. 24, 1956: 3″ SNOW, FREEZING RAIN—SOUTH DAKOTA
OCT. 18, 1959: 3″ SNOW—NORTHERN NEW ENGLAND

(Source: U. S. Weather Bureau Climatological Data)

1961?

Prepare for early storms—order STERLING ROCK SALT now

If you're caught without rock salt, early storms can paralyze traffic, cause serious accidents, mean heavy business losses. Don't let this happen to you! Stockpile your Sterling Rock Salt now and stockpile enough. (When treated with Storite, Sterling Rock Salt can be kept from caking even in outside storage.) Order *now* from your nearest International Salt Company sales office.

INTERNATIONAL STERLING SALT SALT COMPANY

THE ONLY SAFE PAVEMENT IS A BARE PAVEMENT

BUFFALO • BOSTON • CHARLOTTE • CHICAGO • CINCINNATI • DETROIT • NEWARK • NEW ORLEANS • NEW YORK
PHILADELPHIA • PITTSBURGH • ST. LOUIS • HEADQUARTERS, CLARKS SUMMIT, PENNSYLVANIA

New Cars Resist Salt Corrosion

Salt and calcium chloride receive credit from knowledgeable city officials for bare winter pavements but often bear the brunt of the driver's anger for corrosion damage. Automobile manufacturers have steadily gained in their battle to resist corrosion.

Most city officials in areas subject to severe winters receive complaints about the damage salt and calcium chloride apparently inflict on automobiles, particularly those more than a few years old. Some drivers refer to these chemicals as "fender solvents." The fact that these products prevent thousands of accidents and save hundreds of lives by eliminating or reducing icy street conditions receives little recognition from the motorist who observes the progressive attack of corrosion on his property.

A number of years ago, officials in St. Paul, Minn., bowed to what they thought was the wish of their citizens and used sand as a substitute for chemicals. The outcry from stranded motorists following the first snowstorm far overshadowed the corrosion complaints. The experiment was short-lived.

The use of salt and calcium chloride has increased at an astonishing rate. Many cities supplement their use of sand with chemicals to prevent traffic from whipping it off the streets and to prevent sand piles from freezing. The reduced availability of cinders has curtailed their use. Objections to sand and cinders include the cost of cleaning up in the spring and the threat of sewer stoppages.

Replacement of tailpipes and mufflers cost the nation an estimated $500,000,000 yearly. But engine-emission acids, not exterior chemicals, cause most muffler deterioration according to Elmer W. Bernitt, vice-president of American Motors. The 1961 Rambler boasts of a new, ceramic-coated muffler which the manufacturer guarantees for the life of the car while in the hands of the original owner.

Ford provides an aluminized muffler that is "double-wrapped for three times the normal life." The Buick division of General Motors adds heavy zinc and aluminum coatings to muffler parts.

Body Corrosion

Body corrosion, however, is much more devastating and expensive to repair. Automobile manufacturers have made great strides in this area. They now use the following methods:

- **Ford uses galvanized steel for sills and underbody surfaces.**
- **The Chrysler Corporation, American Motors and Ford's Continental and Thunderbird divisions dip the body into a special resin-base primer that flows into areas not reached by spray guns.**
- **Chevrolet sprays a zinc-rich paint on these lower body surfaces and bakes it for permanence.**

Chrysler, in addition, describes its anti-corrosion protection as consisting of six spray operations, seven immersions and nine finishing operations. Other techniques in use include heavy anodizing of aluminum parts, the use of special-coated steels, galvanizing, improved chrome and copper plating, factory undercoating and others.

New autos are not as liable to incur rocker panel corrosion as this older model.

Today's acrylic finishes resist corrosion to a far greater degree than the enamels in use just a few years ago. Regular washing, however, is still necessary to remove road grime, industrial contaminants, insects, road tars and salts if the finish is to remain lustrous.

Use of Chemicals

Forty years ago a number of automobile owners put their cars on blocks for the winter and removed the batteries. Today the typical driver becomes irritated when deprived of a few hour's use because of snow. He insists upon bare pavements with a minimum of delay.

Chemicals appear to be the solution when used in conjunction with snow plows. Additives are available to prevent or reduce corrosion. Heavy snow falls and low temperatures require plowing but salt and calcium chloride will prevent the snow from sticking and clear the streets of the amount the plows won't reach. Chemicals alone will often remove light snowfalls. Where temperatures remain low, many cities use a small amount of abrasives at corners and crossings.

General procedures vary from city to city but most fight snowstorms with some variation of the following general rules:

- **Spread salt or calcium chloride at the beginning to keep the snow mealy.**
- **Plow when the depth reaches 3 inches.**
- **After plowing, spread salt when temperatures remain slightly below freezing or a mixture of salt and calcium chloride in severe weather to clear the pavements.**
- **If necessary for traction, provide abrasives at danger spots.**

Licking the corrosion problem is not an easy task. Snow-removal officials and auto owners should be happy to know that the automobile industry is attacking the problem with gusto and each year's model improves on the previous one in this respect. ◄◄

O. D. Miller, Communications Supervisor for Dallas, Texas at the Gamewell switchboard.

In Dallas they will tell you

New Gamewell System Operates with Jet Age Efficiency

The new Gamewell fire alarm switchboard in Dallas, Texas is one of the most modern in the nation. And as for efficiency, people in Dallas will tell you, "There's no comparison. There is little maintenance involved and the compact, efficient design of this switchboard requires very little room for installation."

In 1244 Dallas fire safety authorities voted against leasing telephone equipment and decided to retain and improve the city-owned coded systems. Bids were invited and Gamewell won over all other companies.

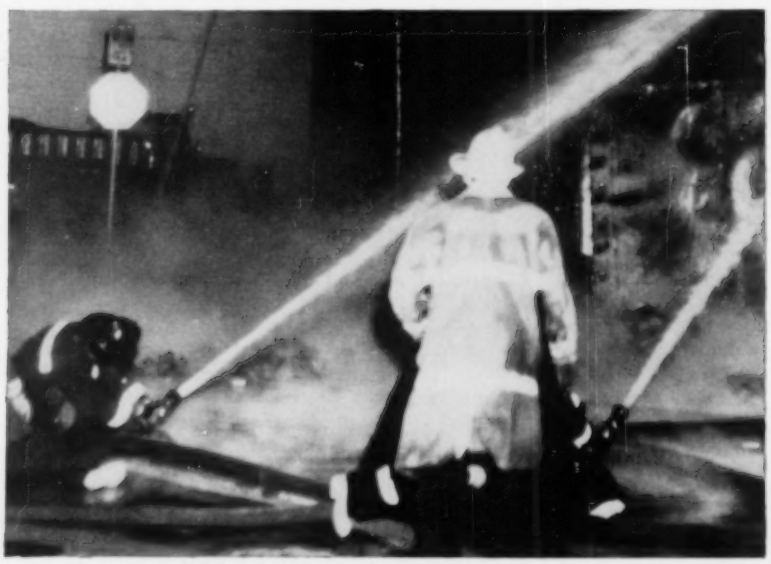
Dallas officials are especially pleased with the fact that the city's 696 box Gamewell system now includes 400 fire alarm boxes that operate over open lines. Because of this the system continues working when a wire is broken, by using the ground and remaining wire for transmission — that's Gamewell dependability.

Are your own fire safety authorities following Dallas' lead and taking positive steps toward reducing loss of life and property? Make it your business to be *sure*. Gamewell will be happy to assist you with your own fire safety problems.

Write for further facts to THE GAMEWELL COMPANY, 1244 Chestnut Street, Newton Upper Falls 64, Massachusetts. A Subsidiary of E. W. Bliss Company.

BLISS Gamewell®

FIRST... WHEN SECONDS COUNT



This view, taken from atop the fire department's aerial ladder, shows the combination bath and filter house partially obscuring the pool behind.

Hialeah Opens Giant Pool

Hialeah, Fla., now boasts the largest public pool in the Southeast, according to Denson H. Hambelton, Superintendent of Parks, Playgrounds, and Recreation. A 22-acre municipal park, including an auditorium, stadium, baseball diamonds, tennis courts and basketball courts, surrounds the $268,862 swimming facility. Last April the Women's Senior National A. A. U. Indoor Swimming and Diving Championships were held in the 165-by-75-foot pool which lies in the center of Hialeah's fast-growing northern section.

The contemporary bathhouse, longer than the pool itself, provides room for seven Modern Swimming Pool sand-filter tanks, each ten feet in diameter by six feet four inches in height. Although the 40-hp Chicago centrifugal pump has a capacity of 2,000 gpm, it presently operates at 1,550 gpm, which produces a turn-over rate of six hours in the 555,000-gallon pool. A Wallace and Tiernan V-notch, solution-fed, vacuum chlorinator supplies from ten to 200 pounds per day, depending on whether the 945-person capacity of the pool is reached and maintained.

Underwater lights illuminate the deep center and shallow end sections of the pool. One three-meter and two one-meter diving boards meet official standards while supplying unofficial fun. Admission charges to this beautiful pool are relatively cheap. Adults pay 35 cents, children 15 cents; non-resident fees are 75 and 35 cents, respectively.

Opened only last year, it has already been the site of state and international swimming meets. ◄◄

Fire Protection Tips for Parks

A select crew of 18 employees recently completed a six-hour course in fire-brigade emergency procedures given by the Los Angeles Fire Department. The training will help insure protection against fire in the Recreation and Park's Department's new $1,500,000 Central Service Yard.

The brigade team learned how to size up small fires and how to put them out quickly with the proper extinguishers. They also learned to inspect plant equipment for fire prevention.

Brigade members received practical training in the use of fire extinguishers utilizing carbon dioxide, dry chemical and water. They also learned to respond quickly to fires by selecting the extinguisher nearest their places of work, then converging at the point of the emergency.

Fire Inspector Francis O. Ramsey, course instructor, pointed out that the first five minutes of a fire are the most important. In reporting fires, the inspector instructed brigade members to call the switchboard operator immediately to give the location and type of fire. The operator has the responsibility of notifying the Fire Department and calling the rest of the plant protection detail on the loudspeaker. She sounds a warning bell in the building in danger, for evacuation.

Inspector Ramsey told the fire safety crew that while they should make full use of extinguishers to check a blaze until the Fire Department arrives, they should be careful to use the correct type. The wrong choice may cause great personal hazard from electric shock, poisonous fumes, spreading the fire, or explosion.

To reduce the risk of fires in the Central Service Yard, Inspector Ramsey prescribed the following safety measures for all workmen:

- **Don't put gasoline or kerosene into bottles.**
- **Keep exit doors and fire doors unlocked and workable.**
- **Dispose of waste regularly and safely.**
- **Use proper coverings on acids, paints, fuels, wood shavings and dust.**
- **Make sure that sprinkler heads are unobstructed.**
- **Fuse all electrical equipment correctly, and maintain wiring and connections in good condition.**
- **Allow adequate ventilation in flammable liquid areas.**
- **Keep all aisles clear.**
- **Use only safe-smoking areas.**

MORRIS SCHULATSKY
Recreation and Parks Department
Los Angeles, Calif.

Double the clear water capacity at half the installed cost with Celite Filtration

Because diatomite filtration systems using Celite® filter aids require one-fourth the housing space of equivalent-capacity sand systems, real estate and construction costs are drastically reduced. These savings, combined with the low initial price of a diatomite unit, permit the construction of new water filtering plants at one-half the cost.

Celite is the most efficient and economical filter aid available. It removes all suspended solids—including amoebae, floc and algae—while maintaining maximum flow rates. And, this clearer, brighter water is produced at a lower cost because a compact, semi-automatic diatomite system is easily operated and maintained by regular municipal water personnel.

For full information write: Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

JOHNS-MANVILLE JM PRODUCTS

A Courtesy Ticket Is a Persuasive Reminder

Courtesy tickets, although used only a short while, have brought about a remarkable change in refuse-storage practices on the part of the citizenry. We found that past practices of many homeowners in putting out refuse for pick-up made collection difficult, expensive and created unsanitary and unsafe conditions, i. e., improper containers, poorly wrapped garbage, loose material, etc. These, of course, were violations of our city ordinances but we were reluctant to enforce them too strictly.

To correct this difficulty, we have been lubricating the machinery of change with a little diplomacy. With attendant publicity, we worked out a "Courtesy Ticket" to call attention to the violation. All refuse collectors carry a supply of the tickets, which are perforated and numbered. Where the worker finds an unsanitary condition he ties the top half of the ticket to the door knob and brings the bottom half back to the office where it is recorded in a log.

When the office clerk receives the second stub for the same property, he informs the corporation counsel who sends a letter of warning. Upon receipt of the third stub from the same property, the corporation counsel prosecutes.

We find that the three-phase method of approach eliminates contrary public reaction, yet it is still effective. The persuasiveness of the first ticket is usually sufficient to correct the condition.

JOSEPH MCD. MITCHELL
City Manager
Newburgh, N. Y.

COURTESY TICKET
Trash and Garbage Collection Violation
City of Newburgh, New York

To Owner or Occupant:

Address: .....

The trash ..... Garbage ..... in front of your property was not in proper containers today. This causes a health and safety nuisance, looks poorly and is in violation of city ordinances. Your cooperation is requested in keeping the city clean. Further violations will result in an official warning, followed by a Court summons and fine. For further information call the Department of Public Works, (JO 1-4871).

Date .....

№ 996 Time .....

Department of Public Works

Date ..... № 996

Time .....

Name .....

Address .....

Department of Public Works

This perforated and numbered ticket notifies a householder of a refuse-storage violation and forms the basis of a record in the office.

Britons Discard Their "Dust Bins"

The substitution of disposable paper sacks for unsanitary refuse containers, or dust bins in British parlance, apparently results in cheaper, dustless refuse collection and disposal. The Swale Rural District Council of Great Britain arrived at this conclusion as a result of their own experiments patterned after similar systems in Denmark and Sweden.

The mechanics of the new system are simple. District employees attach a cover and rim assembly to the outside wall of the house. The property owner opens the clean sack, left by the collector when he removed the full one. She inserts the clean bag over the smaller metal rim and closes two semicircular brackets which hold the sack securely in place. The metal lid closes to form a sealed container.

The sacks hang suspended from the friction grips at the top. Since they will never stand in water under this arrangement, their built-in wet strength enables them to survive several weeks of rainy weather.

The 2.5-cubic foot sacks now in use in Great Britain are two-ply 2/33 kraft paper. They are 39 inches long and resist catching fire from glowing ashes by means of a special treatment.

Swale officials tested the bags for six months before giving them the stamp of approval. The district proposed to change to a back-door collection from the existing curb location. Collection from the new location using metal garbage cans involved transferring the refuse from one can to another at the back door, an unsightly and insanitary operation, or an extra trip to return the householder's empty can. Using the disposable-container method, the collector carries the empty sack to the back-door location and returns to the truck with the filled container, a system which eliminates carrying a heavy metal can.

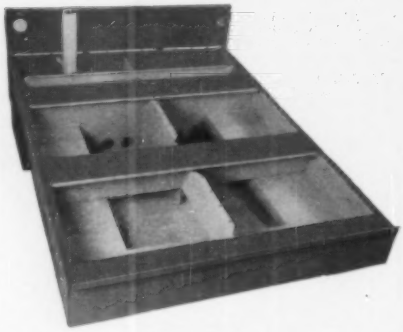
Time studies indicate that a back-door sack collection requires 54 seconds while the garbage-can method needs 122 seconds. The former method of collecting from garbage cans at the curb used 46 seconds. Based on these studies and the obvious superiority in sanitation, Swale officials adopted the paper-bag method for back-door collections from their 7,000 properties. Others have since adopted the new system.

The International Paper Company is currently investigating this method for application in the United States. They expect to cooperate with municipal officials and conduct two pilot installations in the near future. ◄◄

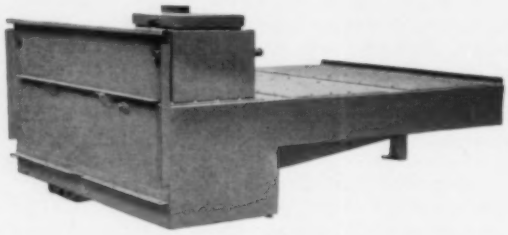
AMERICAN LA FRANCE

EXTRA VALUE

American LaFrance water tanks are constructed of heavy gauge, corrosion resistant steel, electrically welded at all seams and joints, plus Zincilate interiors for years of trouble-free service.



500 gallon water tank showing removable covers, sloping bottom and deep outlet sump to utilize full water capacity.



Exterior of 500 gallon water tank illustrating front fill with deep outlet sump sloping bottom.
(Rear fill optional)

THREE REMOVABLE COVERS are provided on the 500 gallon water tank top side permitting full opening for inspection and cleaning. All covers are rubber gasketed. The forward cover includes the fill tower and vent tube cover as integral parts.

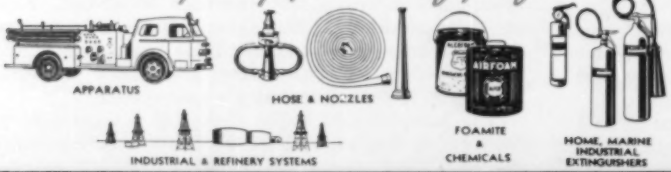
The sloping bottom insures the full tank water capacity for fire fighting use whether the truck is on level surface or a grade. The outlet sump is provided with two 2½" outlets (one being plugged for possible future use). One has a flow capacity to supply two 1½" lines for two fog nozzles at combined flow rate of 200 g.p.m. Actual tests at this flow rate left only four gallons of water in the tank before air entered the suction line.

Baffles effectively separate this tank into six compartments. No weight transfer or water spill on sharp turns. No water loss on emergency stops. The large 4 inch vent and overflow protects the tank.

Large top openings give full access to the tank interior. The Zincilate treatment provides a smooth, clear, light color finish to aid inspection. There is no peeling or separation of the Zincilate. All tank welding is done before Zincilate treatment process is applied.

Water tanks are provided with a flange mounting for an electric water level gauge unit.

Everything you need to fight fire!



AMERICAN LA FRANCE

A DIVISION OF STERLING PRECISION CORPORATION

ELMIRA, N.Y.

LaFrance Export Corporation
Elmira, N.Y.
LaFrance Fire Engine and Foamite, Ltd.
Toronto 18, Ontario, Canada

The World's First and Largest Makers of Fire Fighting Equipment

New Brighton's Rescue Unit

When volunteer fire-fighters in New Brighton, Minn., a Twin-Cities suburb of 6,000 inhabitants, wanted a rescue unit, they rebuilt a used 1948 Ford Vannette into the unit shown here.

The heart of the unit is the compact 5,000-watt electric-generating set built by Onan Division of Studebaker-Packard Corp. of Minneapolis, Minn., which supplies energy for the power saw, smoke extractor and flood lights, public address system and two-way radio. ◄◄

Latest Two-Way Radio for Highway Vehicles

The Oklahoma Highway Department has let a contract for two-way General Electric transistorized radios as the first step in the creation of a communications network to include 400 radio-equipped vehicles.

Eighty-watt equipment will be used in cars and trucks to communicate with division offices. Forty-three base stations will be employed, with power output up to 330 watts, to link the State Highway Department at Oklahoma City with division offices in nine zones and to permit the division locations to converse with mobiles in their own zones.

Tone encoders and decoders will be used for selective signalling of the mobile relay points for some mobile units, and for all the division office stations.

According to Pete Howard, communications manager for the Oklahoma Department of Highways, four high-band frequencies will be employed—two channels of two frequencies each. This permits two separate communication systems to operate within the framework of the total network. One will be used for administrative messages and the other for maintenance purposes.

State Civil Defense Director Thomas Brett said the highway department's communications program will represent a primary means of communication in civil-defense activities. For that reason, the cost of the new network is being shared by the Office of Civil Defense Mobilization. ◄◄

Putting on the Dog

Miami's police cars when eligible for replacement through normal rotation policy are reconditioned and given to the new K-9 Corps, the police bureau handling dogs.

Minor alterations are necessary in the interests of safety; small-mesh expanded metal is put in to surround the deck platform where the dogs rest. This serves two purposes; the mesh between the front seat and the back keeps dogs from accidentally or playfully disturbing the driver while the small mesh in the window areas prevents children and others from poking fingers through in attempts to be friendly with the dogs.

Inside, a piece of plywood is cut to fit the interior deck section on which the dogs rest. The only additional equipment is a water container which serves them. The dogs all have been adequately "housebroken" as they live with their handlers and there is no need for other facilities. ◄◄

Patrolman Arthur C. Scheeren, beside "their" 1959 Plymouth station wagon, gives Prince III his "diploma" after the commencement exercises for the Miami police department's K-9 corps, the first in Florida.

Sewer Cleaning—

Three Lakes, Wisc.—1050 feet in and back in 42 minutes.

...proven superior
by cities all over the country...**the world!**

100 feet or 75 miles!
. . . distance or obstructions are all met with the same successful O'Brien stride! Actual sewer cleaning experience is reflected in the design and careful engineering of each and every piece of O'Brien equipment. There is no guesswork . . . no drawing board strategy . . . only facts! That's why—**it's wise to pay a little more and get the best!**

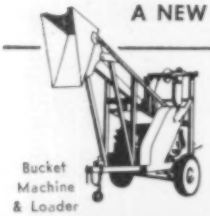
O'Brien has a complete line of equipment designed to surpass the requirements of any sewer cleaning job. Electric hand model—yes! Sectional rod cable machines—of course! Bucket machines—you bet! Continuous rod Power Rodder—the finest! Cutters and accessories—custom designed for each job!

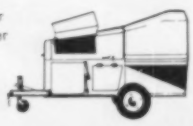
Buy others—IF
you CAN be satisfied with less than the best. BUT, if you want better operation, less maintenance and longer lasting equipment—buy O'Brien.

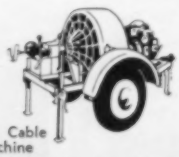
A NEW brochure now available. Write for yours.

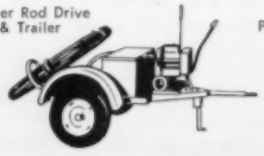
Madison Heights, Mich.—
Pays for itself in maintenance cost savings.

Skokie, Ill.—
"One demonstration convinced me," said city official.


Bucket Machine & Loader


Power Rodder


Cable Machine


Power Rod Drive & Trailer

Power Rod Drive

O'Brien MANUFACTURING CORP.

5636 NORTHWEST HIGHWAY • CHICAGO 46, ILL.
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AMA to Stress Intergovernmental Cooperation

The flexible principle of intergovernment cooperation will be the keynote of this year's Congress of the American Municipal Association to be held in Seattle, Wash., August 26th to 30th.

Mayor Don Hummel, Tucson, Ariz., president of AMA, has divided the program into panel sessions, first for those cities located inside the various recognized metropolitan areas, and secondly for those located outside these boundaries. These panels will discuss urban development, air- and water-pollution control, intergovernment cooperation in highway matters, and similar topics. Discussion leaders will include Dr. Philip Hauser, professor of sociology, University of Chicago; William Slayton, Commissioner, Urban Renewal Administration; Mayor Claude Hutchinson, Berkeley Calif., president of the Association of Bay Area Governments; Rex M. Whitton, Federal Highway Administrator; Judge Pex Hartley, Chairman, Intergovernmental Cooperation Council, Robert F. Kennedy, U. S. Attorney General, and others.

A preliminary program, plus a list of post-conference tours, is available from the American Municipal Association, 1612 K St., N. W., Washington 6, D. C. ◄◄

14 States Add Billboard Controls

Five more states have entered into formal agreements with the Department of Commerce providing for control of outdoor advertising along the national system of interstate and defense highways within their borders.

The five, Connecticut, Delaware, Hawaii, Pennsylvania and Washington, make a total of 14 states which have entered into such agreements. The others are Maryland, North Dakota, Kentucky, Maine, Nebraska, New York, Oregon, West Virginia, and Wisconsin.

Control of outdoor advertising on the interstate system, through such agreements, was provided for by the Federal-Aid Highway Act of 1958. Under the provisions of the legislation, the normal 90% federal contribution for construction of projects on the interstate system is increased by ½% in those states that enter into agreements with the Secretary of Commerce to control outdoor advertising in areas adjacent to the system. ◄◄

Air Pollution Control News

Get New Committee Heads

Dr. E. M. Adams of the Dow Chemical Co., Midland, Mich., will serve as chairman of the Manufacturing Chemists' Association's Air Pollution Abatement Committee, beginning his two-year term on June 1st. O. C. Thompson of the Union Carbide Corp., South Charleston, Va., will be the new vice-chairman.

How Much—What Kind?

A study of air pollution in Vancouver, Wash., to determine how much pollution and what kind of pollution is in the air is underway under the auspices of local and state health officials. This is the first survey of its kind in western Washington. A similar study is being completed in the Spokane area.

Auto Ban Cuts Pollution

During one of last winter's heavy snowstorms, New York City's Mayor Robert F. Wagner banned all automotive traffic until the streets were made passable. According to Arthur J. Benline, Commissioner of the City's Department of Air Pollution Control, the ban had an important effect on reducing air pollution from automotive vehicles. While the concentrations of the pollutants from automotive vehicles measured during the six-day traffic ban were essentially equivalent to the measurements made in the preceding month and were essentially equivalent to other measurements made during the winter months, when no traffic ban was in effect, there were temperature inversions during five of the six days and under normal conditions, the pollution concentrations could have been expected to reach much higher readings.

Enlarge Advisory Staff

Surgeon General Luther L. Terry announced recently that the National Advisory Committee on Community Air Pollution has been enlarged and reconstituted. It now has a membership of 15, five from state and local governments, five representing universities, professional associations and the public, and five from industry. The committee was created in June 1957, to advise the Surgeon General on the Public Health Service's policies, objectives, activities and accomplishments in the air-pollution field.

Free Booklet on Car Exhaust

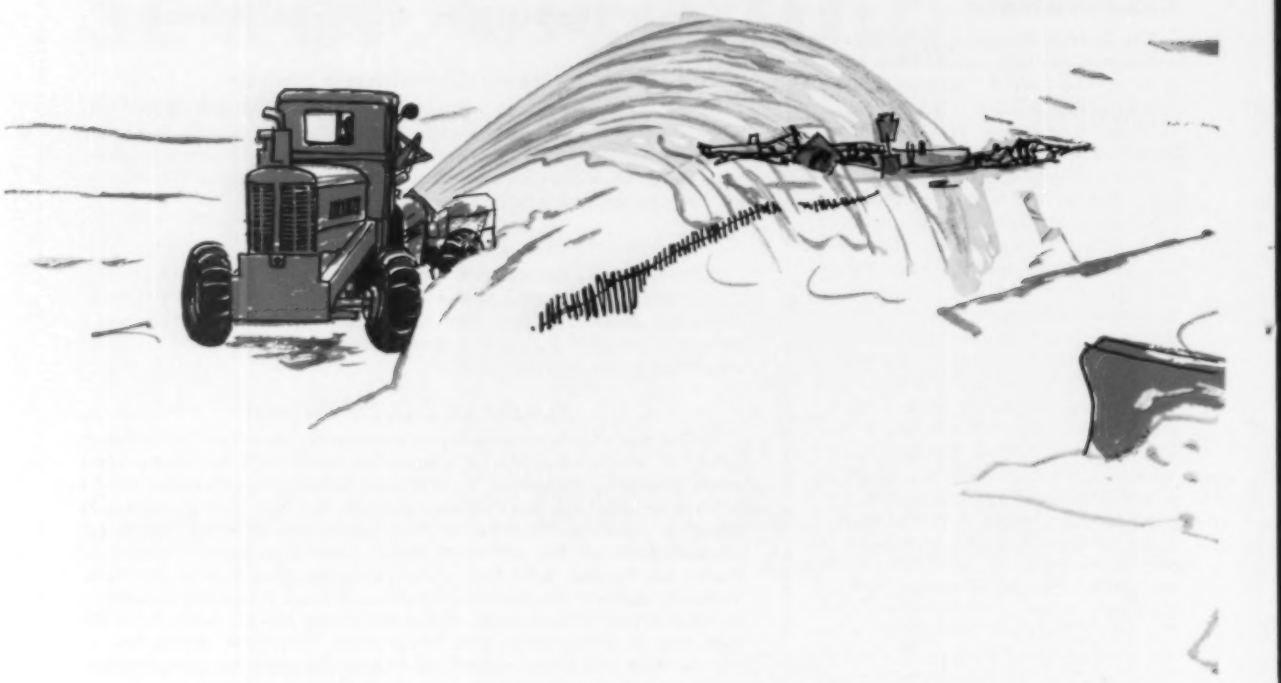
A recent series of articles on automotive exhaust, which appeared in the *Los Angeles Examiner*, has been reprinted in booklet form and is available free of charge upon request to the newspaper. The series is entitled "How Car Owners Must Rally in the Big War Against Smog."

Less Sootfall in New York City

Sootfall in New York City declined in 1960 for the second straight year, Arthur J. Benline, Commissioner of that city's Department of Air Pollution Control, announced recently. This marks the first two-year drop in sootfall since 1951-52. Again in 1960, other pollutants, with the exception of those from automotive vehicles, declined or rose only slightly. Oxidants and carbon monoxide, the major pollutants from automotive vehicles, increased in amount, while nitrogen dioxide remained the same as in 1959. The sootfall figure was 68.3 average tons per square mile per month, compared with 70.6 in 1959. The average in 1960 for oxidants was 16.00 parts per billion parts of air; the average for carbon monoxide was 3.50 parts per million parts of air; the average for nitrogen dioxide was 6.00 parts per hundred million parts of air.

—Prepared by Kenneth Kowald

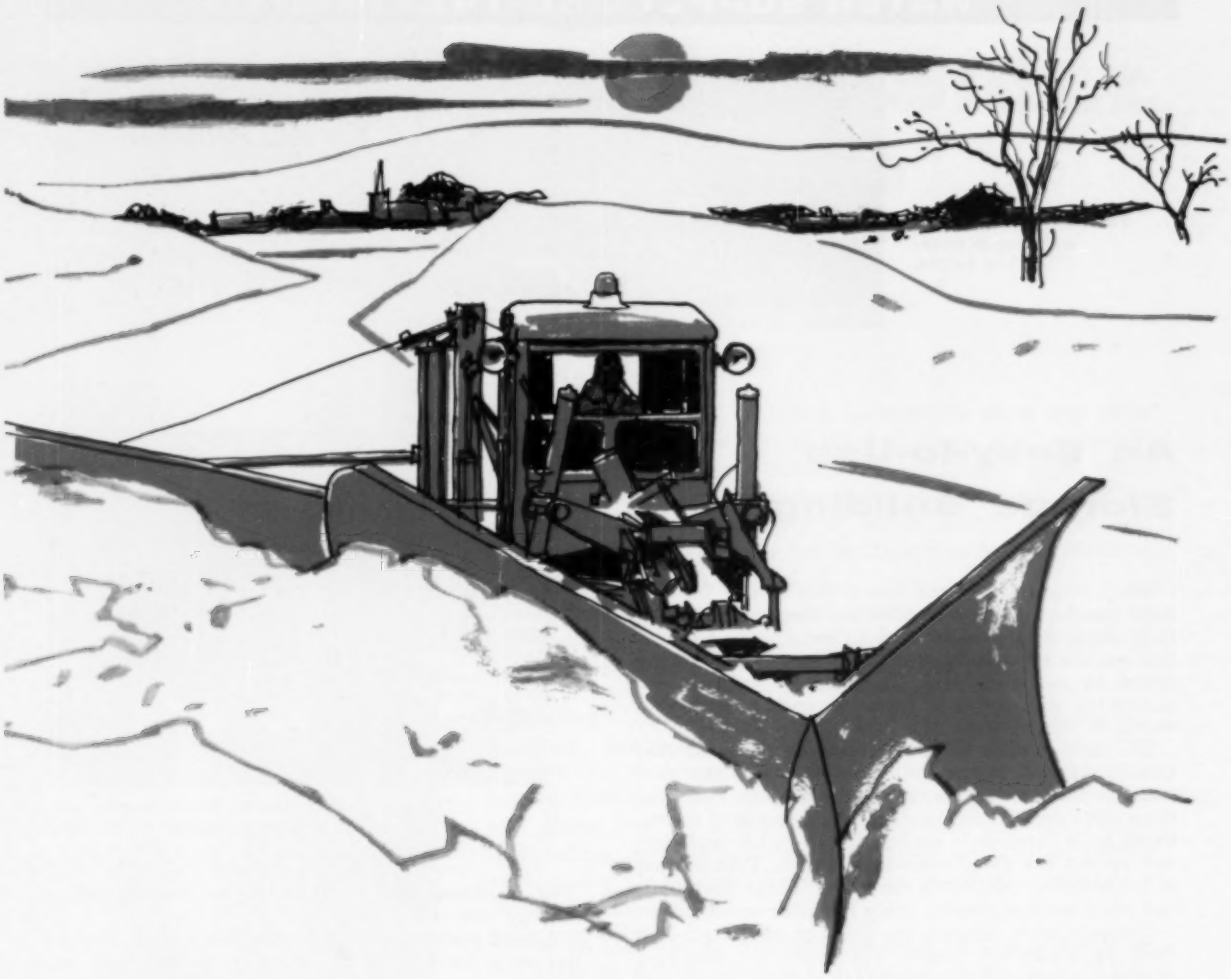
AUSTIN-WESTERN PRODUCTS SAVE TIME AND MONEY

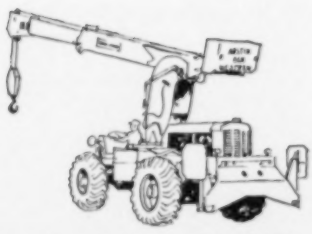


HERE'S SNOW REMOVAL EQUIPMENT THAT SAVES TAX DOLLARS YEAR ROUND

Taxpayers like to see machines that work a full 12 months. An Austin-Western grader plows snow in the winter; builds and maintains roads other times.

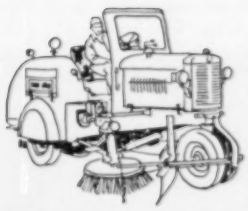
With V-plow and wing, the A-W keeps roadways snowfree and traffic moving; plows wide 9-ft. 2-in. swath through heaviest drifts and widens out at the same time. Never gets stuck—usually tows other types of plowing equipment out of trouble! All-wheel drive lets you cut crusted snow and drifts with knifelike ease. All-wheel steering lets you apply full power against thrust from snow bank; keep one set of driving wheels always on solid footing. Easy to plow close to signs, poles, hydrants . . . extremely maneuverable. Fully hydraulic; operator never leaves snug all-weather cab. Optional front-mounted snow blower attachment does not interfere with grader blade operation; attaches or detaches in a matter of minutes. 9 models; 4- and 6-wheel. Weights to 30,000 lb., power ranges to 176 hp. Like more information? Just write us.





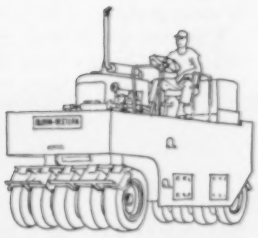
A-W HYDRAULIC CRANES

5 models. Capacities to 11 tons. Self-propelled and truck or stationary mounting. "Live" hydraulic booms extend up to 48 ft. on some models.



A-W MOTOR SWEEPERS

2 models: 2-yd. Model 40; 4-plus Model 60. Safe, easy front steer; full visibility. Simplified design; broom and hopper in rear.



A-W COMPACTION EQUIPMENT

Variable weight tandem, 3-wheel and pneumatic tired rollers; portable tandem; Roller-Compactor; vibratory attachment for most 3-wheel rollers.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

BALDWIN BLH LIMA-HAMILTON

The floor of the storage building is truck-box height.

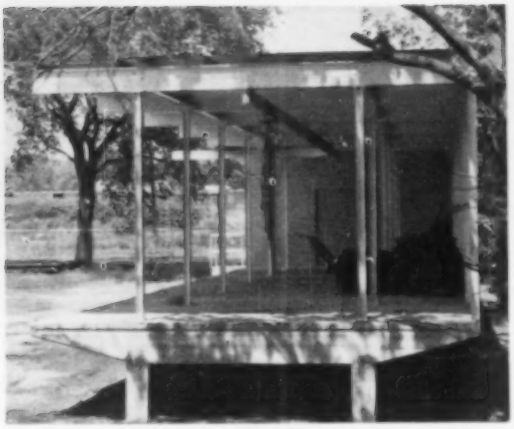
An Easy-to-Use Storage Building

When employees of the Sioux City Water Department require a heavy valve, tee or other type of fitting, they drive their vehicle to the new storage building and use the electrically-operated crane to deposit the fitting in the truck box. The storage building also eliminates the problems formerly encountered with weeds in the summer and snow in the winter.

The new storage building measures 20 by 80 feet and employs a Milcor steel roof deck for the roof and the north side. One end and a 60-foot length of the south side are open for economy and ease of access. Brick walls completely enclose the 20-by-20-foot west end except for the double-door access. This portion of the building safeguards the brass fittings from theft and frees more expensive space for other needed uses.

Concrete piers support the T-beam reinforced-slab floor at truck-box height. The matching elevation provides a safe and convenient transition from storage to transport.

The two-ton Budgit crane travels on an overhead rail which hangs from the steel roof beams. The rail extends from the open end of the building and curves in a 90° arc to project six feet over the open side.



The rail which supports the crane overhangs the long open side of the building.

This overhang allows the crane to deposit fittings directly into the truck boxes.

A local contractor built the structure and furnished the crane for $13,800. Future plans include a 40-foot extension.

WILLIAM MURPHY *and* A. E. RASMUSSEN, P. E.
Sioux City, Iowa

---

* Mr. Murphy is director of the Water Department; Assistant City Engineer Rasmussen designed the building.

Florida's Best

The presentation of awards for the best operated plants represents one of the highlights at the annual Florida Water and Sewage Works Operators Association Short School. This year the State Board of Health's Bureau of Sanitary Engineering Director David B. Lee (standing, left) presented the awards to (seated, left to right) Paul Constable, Miami; John Sellers, Vero Beach; Charles Ross, Tampa; Jack Whitney, Miramar; Elmer Potter, Treasure Island; and Fred Kingery, Pinellas County. Standing, left to right, are Mr. Lee; Walter Peele, Fort Lauderdale; Clifford Courson, Tampa; Jerry Sellers, Cocoa; Joe Valdespino, Southwest Orange County; and Eugene Cochran, Miami. ◄◄

Regular Submersible

SUBMERSIBLE PUMPS

deliver water

economically

consistently

silently

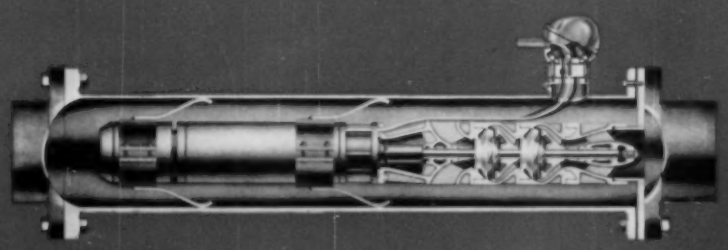
efficiently

The Layne Submersible Pump installation gives you noise free operation because the pump and motor are completely submerged. The Layne Submersible is adaptable to all wells; requires a minimum of space since no pump house is required; eliminates possibility of water contamination; and eliminates the opportunity for vandalism or other accidental mishap or damage.

Layne Submersible Pumps are available for wells as small as 6 inches and in capacities from 30 GPM up. For additional information write for free bulletin number 202.

The Layne In-Line Submersible pump provides the answer to many problems in booster pump applications. The pump operates as an integral part of the line and is designed for use by municipalities, industry, such as petroleum and chemical plants and by agriculture. Advantages include: simple installation, no additional space required, continuous service even under flood conditions, and no possibility of surface water contamination.

Layne In-Line pumps are made as small as 4 inch bowls on a 4 inch motor for use in a 6 inch pipe to deliver 30 GPM. Larger sizes are available as required. For additional information write for free bulletin number 203.



In-Line Submersible

Layne SINCE 1882

COMPLETE WATER SERVICE

LAYNE & BOWLER, INC., MEMPHIS

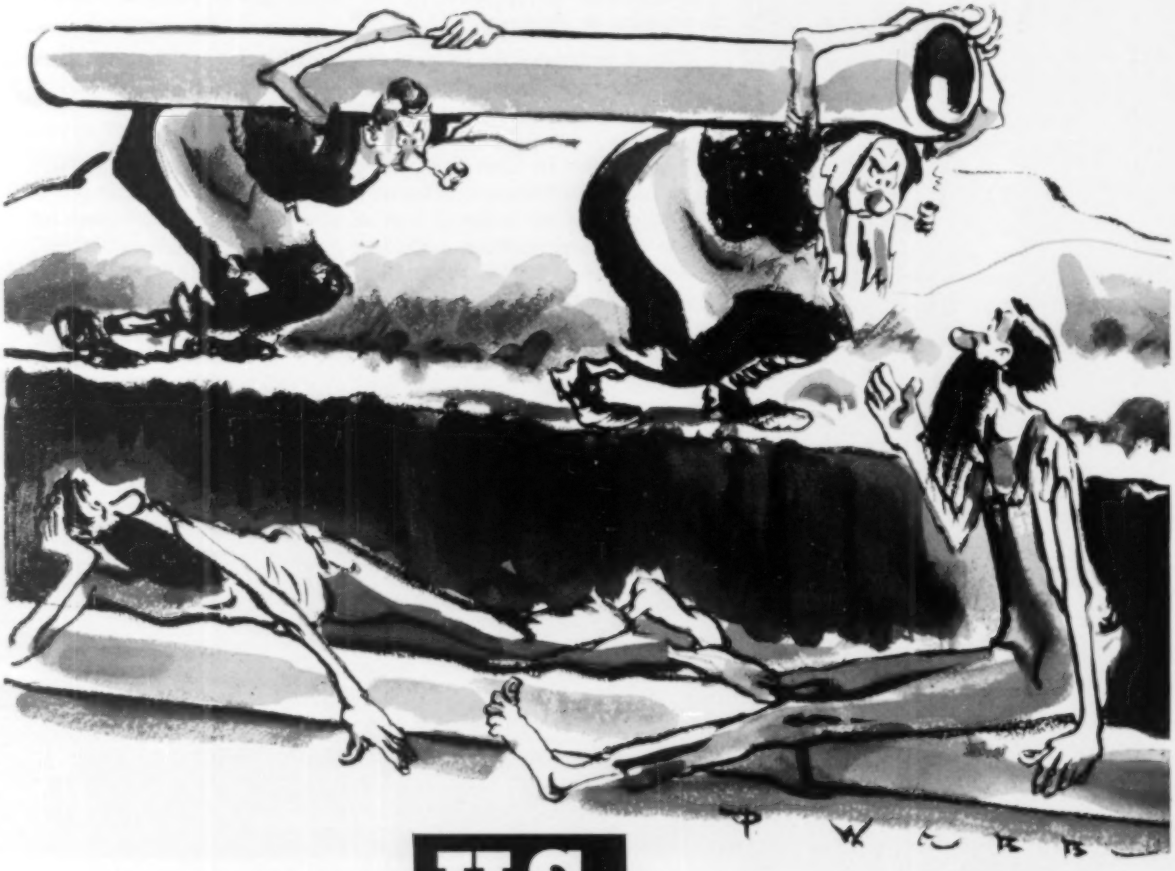
General Offices and Factory, Memphis 8, Tenn.

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Sales Representatives in Major Cities

Find LAYNE Fast in the Yellow Pages under pumps

"Could you fetch it
a little quicker Gran'maw
Tyton lays mighty fast y' know"



U.S. cast iron PIPE FOR WATER, SEWERAGE AND

stays ahead of the job

No need for your ditcher to dally . . . . .

Tyton Joint® pipe keeps pace . . . stays right with your laying crew. Even in rain or wet trench. "Tyton" is so simple, so easy to handle. Only one accessory needed—a rubber gasket. No bell holes, nuts, bolts or caulking equipment.

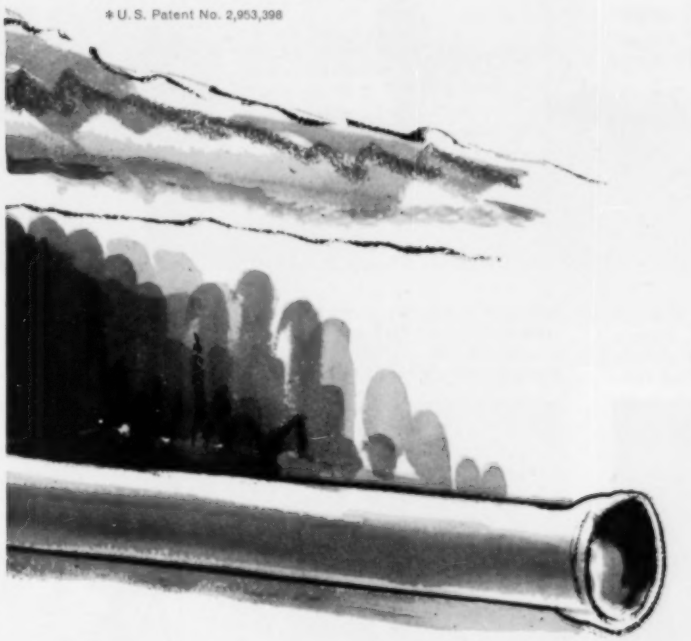
"Tyton" goes in fast . . . cleans up fast. And **you** get the benefit—lower costs, more lengths laid per man.

Get the full, money-saving story today.
Call or write:

U. S. PIPE AND FOUNDRY COMPANY
General Office: Birmingham 2, Alabama

A Wholly Integrated Producer from Mines and Blast Furnaces to Finished Pipe.

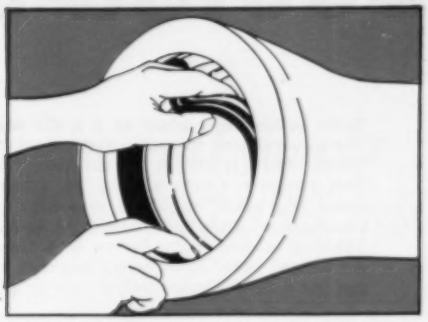
* U. S. Patent No. 2,953,398



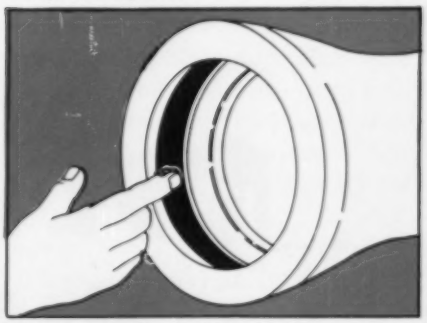
INDUSTRIAL SERVICE ® CAST IRON

TYTON®

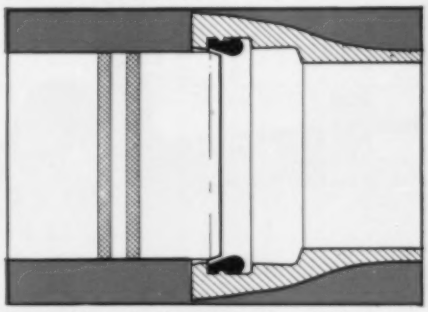
ONLY FOUR SIMPLE ACTIONS



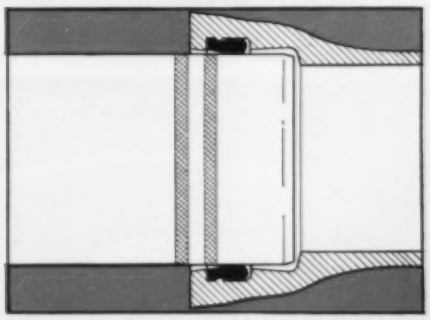
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.

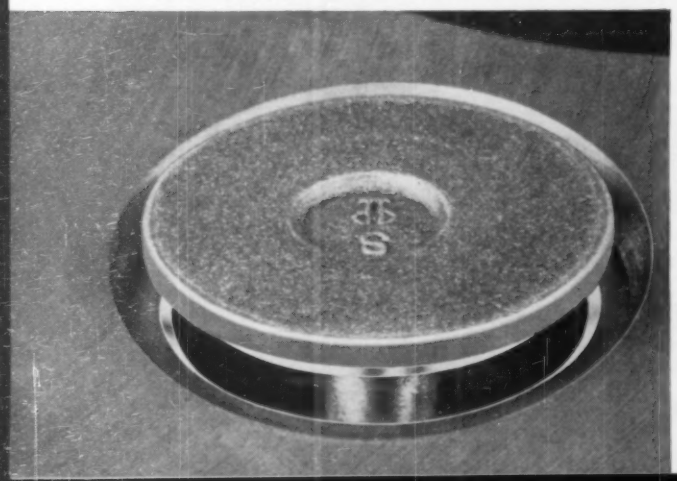


Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

Beefed up for hardest

Onan builds every plant as if a life depended on it. We never know the ultimate use of an Onan generator when it comes off the line, but before the Performance Certified tag is attached, we *do know* the plant could be depended upon in *any* emergency. Whether your need is for emergency lighting or electricity for an iron lung, why settle for second best? Before you buy any electric plant, see your local Onan distributor or dealer.

Stellite coated exhaust valves and valve seats. One of toughest alloys known. Gives you up to 300% longer valve life than uncoated valves. It's the important details like this that make Onan more economical in the long run.



Exacting standards govern manufacture—years of specialized experience and extensive testing facilities control the quality of Onan Power Plants. Over 1000 different types and sizes of plants are produced by Onan.

use...even abuse

Onan electric plant still delivers full power after 12,197 hour test—equal to 487,888 miles

A grueling endurance test that lasted one year, nine months and 12 days could not stop Onan test plant #1068. Onan engineers used this production-built unit for an endurance run—and after it was all over, it still generated the full rated power promised on the nameplate. Proof that Onan's exacting standards and production testing give you a power plant with long, dependable life built in.

Over 1,700 other endurance units have been run by Onan engineers. In these tests every design feature and part has to prove itself before it can become a part of the Onan you buy. In addition, every type and size Onan plant is tested under all operating conditions which could conceivably affect performance on your job.

Hours of running in and testing under full load are given *every* Onan before it is shipped. An independent testing laboratory then spot tests Onan Plants that have already been tested by Onan—double assurance that every Onan will deliver its full nameplate rating. Only then does an Onan production run qualify for Performance Certification.

Buy *proven performance* when you buy an Electric Plant. See your authorized Onan distributor or dealer. You can depend on him for a lifetime of factory parts and service. He's listed in the Yellow Pages.

ONLY ONAN GIVES YOU THIS CERTIFICATION

Onan
Onan
PERFORMANCE CERTIFIED
We certify that when properly installed and operated this Onan electric plant will deliver the full power and the voltage and frequency regulation promised by its nameplate and published specifications. This plant has undergone several hours of running-in and testing under realistic load conditions, in accordance with procedures certified by an independent testing laboratory.

World's Leading Builder of Electric Power Plants

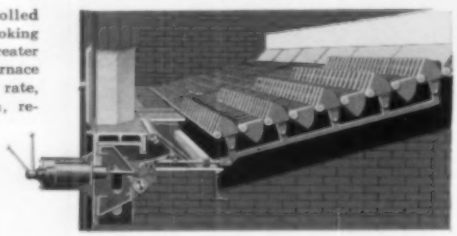
ONAN DIVISION, STUDEBAKER-PACKARD CORPORATION • 2613 UNIVERSITY AVE. S. E., MINNEAPOLIS 14, MINNESOTA

PDM HIGH TEMPERATURE INCINERATION PLANTS

Baltimore, Md.—800 tons per 24 hrs, with mechanical stoking; the second large PDM plant in this city.

for modern communities...**modern refuse incineration** without smoke or odor nuisance!

Hydraulically-controlled PDM mechanical stoking provides up to 50% greater capacity for each furnace cell, higher burning rate, continuous operation, reduced labor costs. Available for new and existing PDM installations.



Your community's garbage disposal problem can be reduced to clean ash with a PDM Incinerator. And into the bargain—lower costs per ton, smoke- and odor-free performance, excellent appearance for any locality. ■ Pittsburgh-Des Moines *High Temperature* Incineration Plants are engineered in units from 10 to 800 and more tons capacity per 24 hours, and may be equipped with PDM mechanical stoking for minimum manpower requirements. Write for the facts in our free 20-page brochure—detailed, informative, complete!

Little Falls, N.Y.—20 tons per 24 hrs. A typical small-capacity PDM plant.

Pittsburgh-Des Moines Steel Company

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES
PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

PITTSBURGH (25) ..... Neville Island
WARREN, PA. ..... P.O. Box 660
BALTIMORE(26) P.O. Box 3459, Curtis Bay Station
BIRMINGHAM (8) .. P.O. Box 8641, Ensley Station
DES MOINES (8) ..... 1015 Tuttle Street
PROVO, UTAH ..... P.O. Box 310
SANTA CLARA, CALIF. ..... P.O. Box 329
EL MONTE, CALIF. ..... P.O. Box 2012
NEW YORK (17) ..... 200 East 42nd Street
NEWARK (2) ..... 744 Broad Street
CHICAGO (3) .. 679 First National Bank Bldg.
ATLANTA (5) 361 East Paces Ferry Rd., N.E.
DALLAS (1) .... Suite 1703, Southland Center
DENVER (2) .... 323 Railway Exchange Bldg.
SEATTLE (1) ..... 500 Wall Street

PDM INCINERATORS

Have You Problems?

These Free Booklets Will Help You

Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.

Write to address given or circle corresponding number on free post card on page 53.

Scale Models for Architects, Planners

251 JOHN H. WELLS & ASSOCIATES, 35 E. WACKER DR., CHICAGO 1, ILL., specialize in making accurate miniature scale models of the interior and exterior of municipal and office buildings, shopping centers, city malls, subdivisions and renewal areas. Details on request.

Concrete Structures Need Repairing?

252 Want to do it an easy, effective way? Why not ask PNEUMATIC CONCRETE AND REFRACTORIES, INC., 1520 WALNUT ST., P. O. BOX 55, ALLENTOWN, PA., specialists in building and repairing of concrete construction? Ask, also, for facts about the Allentown pneumatic gun.

For Fire Departments

253 These high-frequency tone-activated F-M radio receivers are designed for use with your present fire department 2-way radio. They will enable you to call or alert volunteer firemen, emergency squad and other selected groups. PLECTRON CORP., DEPT. MI-1, OVERTON, NEBR., will provide descriptive literature.

Get Ready to Remove Snow

254 . . . faster, easier and at less cost is the advice of MONARCH ROAD MACHINERY CO., 1331 MICHIGAN ST., N. E., GRAND RAPIDS 3, MICH. By using Monarch power controls you can lift and lower your snow plow right from the cab and get instant up or down action. They are quickly installed.

Safe Fiberglas Boom For Municipal Maintenance

255 The Strato-Tower fiberglas boom has been subjected to a series of tests which show it to provide protection for basket crews should it contact transmission lines carrying up to 340 kv. A catalog describes the aerial boom. Write DEPT. AC7, EQUIPMENT DIV., YOUNG SPRING & WIRE CORP., BOWLING GREEN, OHIO.

Dependable Fire Apparatus

256 Mack manufactures and matches the components of its fire equipment so they function as balanced, integrated apparatus. For details on the full complement of fire engines, aerials, etc., and their design features, write MACK FIRE APPARATUS, ALLENTOWN, PA.

Pneumatic Sewage Ejector

257 Sewage ejector systems with ranges from 30 to 600 gpm capacities equipped with simplex or duplex arrangements and a choice of controls are explained in *Bulletin* No. KSM-2. Write KOMLINE-SANDERSON ENGINEERING CORP., PEAPACK, N. J. for your copy.

Fast Salt Deliveries For Snow-Ice Control

258 The new Rock-salt depots set up by the DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH. offer fast economical service on deliveries of salt for your snow and ice needs for the winter season ahead. Find out from the company how this system can serve you.

Low-Cost EDP Programs

259 THE NATIONAL CASH REGISTER CO., DAYTON 9, OHIO, has announced a series of new "package" programs which provide low-cost electronic data processing services for companies not having computers. Interested municipalities and utilities can obtain details upon request.

Revenue-Producing Parking Meters

260 These meters eliminate free time, deliver 50% more revenue. Literature reports they require less policing, have a rugged VAN Lock for full protection, and no moving parts. Write THE PARKIT-LOCKIT CO., 3609 CHURCH ST., CINCINNATI 44, OHIO.

Planning Sewer Force Mains?

261 Then you will want literature describing pressure sewer pipe from PRICE BROTHERS CO., 1932 E. MONUMENT AVE., DAYTON 1, OHIO. It is a pipe with high strength, is watertight, non-corrosive, is easily installed, handles high pressures, is durable and economical.

Data Processing For Municipalities

262 Latest brochure from Remington Rand discusses new equipment, applications and advantages of an automatic data processing system ideal for utility billing, accounting, statistics. Write REMINGTON RAND UNIVAC DIVISION OF SPERRY RAND CORP., 315 PARK AVE. SOUTH, NEW YORK 16, N. Y.

Snow Moving Equipment

263 A new booklet from CATERPILLAR TRACTOR CO., PEORIA, ILL., entitled "Snow Movers" describes the machinery available from them for handling snow in the season ahead. It describes the versatility of its motor graders using V-plows and wings, reversible plows, one-way plows and loaders.

Lick Dewatering Problems

264 The new "PosiJector" trash pump Here's a sturdy line of street conand eject it without clogging which makes it ideal for all dewatering work. The pumps have from 20,000 to 46,000 gph capacities. Write for descriptive catalog PT-1, THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

New Mix-In-Place Economy

265 . . . can be realized with the new Unimix made by HOWARD ROTAVATOR CO., INC., HARVARD 2, ILL. Tractor mounted it will mix and blend; pulverize and reclaim; add moisture for better compaction; aerate soil to speed production; strengthen bases with any additive and clear land.

New 2-Way Radio For Municipalities

266 . . . is the Radio Corporation of America's new transistorized "LD" two-way radio. Its cost is comparable to tube-type, it is easy to service and has low battery drain. For descriptive literature write RCA, TELECOMMUNICATION CENTER, DEPT. X-4, MEADOW LANDS, PA.

Plan Winter Ice Control in Summer

267 MORTON SALT CO., INDUSTRIAL DIVISION, DEPT. AC 7, 110 W. WACKER DRIVE, CHICAGO 6, ILL., has news of an ice control program for municipalities that will reduce wintertime accidents and create good public relations. Ask about the Safe-T-Salt.

Film Shows Plastic Water Pipe Advantages

268 A new motion picture of gas, water and drainage installations shows the advantages of ABS semi-rigid plastic pipe which cuts materials, installation, handling and maintenance costs while giving superior performance. For your free showing, write DEPT. A-7, MARBON CHEMICAL DIV., BORG-WARNER, WASHINGTON, W. VA.

Screens Out 90% of Organisms From Water

269 . . . with stainless steel fabric made of thread from .0016 to .0040 in diameter giving 160,000 apertures 1/1000" across to each square inch. Installations are in use all over the world solving water treatment problems. Write GLENFIELD & KENNEDY, INC., 275 HALSTEAD AVE., HARRISON, N. Y. for details.

Efficient Fire Engine Chassis

270 Highlighting 45 years experience in building trucks for fire fighting, FORD DIV., FORD MOTOR CO., DEARBORN, MICH., has published in the interest of fire protection and prevention a new booklet designed to help you select the most efficient fire engine chassis. Write the FLEET SALES DEPT. for your copy.

Huge-Hauling of Refuse

271 THE HEIL CO., MILWAUKEE 1, WIS., describes its Huge-Haul detachable container system in a new *Bulletin* No. HH-61102. It shows how one truck becomes a fleet using this system. The container holds to 40 cu. yd. or loads to 30,000.

"America Moves Ahead With Rapid Transit"

272 . . . is a new brochure describing transportation progress in 10 metropolitan areas including the computer-controlled 80-mile-an-hour system for San Francisco. It also presents a program to help establish coordinated metropolitan transportation systems. Copies, singly or in quantity, are available from SEC. GED-4447, GENERAL ELECTRIC CO., SCHENECTADY, N. Y.

For Street Construction and Maintenance

273 Here's a sturdy line of street construction, maintenance and cleaning equipment, including street cleaning carts, sweepers, asphalt heaters and spreaders, chip spreaders and sheep's foot or pneumatic rollers. W. E. GRACE MANUFACTURING CO., 6009 S. LAMAR ST., DALLAS, TEXAS has them all. Write for details.

(See page 46 for more Bulletins)

MI-CO

PARKING METERS

Laugh at Weather

These manual meters defy the vagaries of all the seasons. Only six moving parts, made of stainless steel, clock brass and brass forgings, or die castings. Here's quality that ensures long profitable service in all kinds of weather, with negligible down time and maintenance. Adjustable to any number of hours and coin combinations. Engineered for scientific traffic control, with service to the public and profit to the city. Michaels also make Twin automatics, and exclusive tamperproof coin collection system. Before you buy, write us for the whole MI-CO story.

ONLY SIX MOVING PARTS

A Symbol of High Quality

M ABC

MI-CO PARKING METERS, P. O. BOX 668-A, COVINGTON, KENTUCKY

(The Michaels Art Bronze Co., General Offices and Plant, Erlanger, Kentucky)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 53.

How to Eliminate Air Pollution

274 If your city has disagreeable sewage plant or incinerator odors, or if discomforting industrial odors plague your residents, find the solution to these annoying problems by writing Municipal Engineer, Dept. C., CATALYTIC COMBUSTION CORP., 4725 14th ST., DETROIT 8, MICH.

To Speed Materials Handling

275 . . . you will want to get the facts on how the 180° Speed Swing material handler made by PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL. can reduce your equipment investment and maintenance costs by giving you a loader that swings the load, not the loader, to give faster, safer, more efficient handling.

Measure Distance With Just One Man

276 With just one man and Rolatape's measuring wheel you can accurately measure up to 100,000 feet automatically. It records inches and fractions for easy reading and is calibrated in tenths on reverse side. For details on this system of precision measuring, write ROLATAPE, INC., 1741 14th ST., SANTA MONICA 2, CALIF.

Sure Cure for Failing Sewers

277 Here's a way to make your old sewer lines better than new without excavating. You can do it with leak-tight liners that slide into your sewer line and are easily joined by inexperienced help. For complete details write the EVANITE PLASTIC CO., DIV. OF EVANS PIPE CO., UHRICHSVILLE, OHIO.

Cut Snow Removal Time

278 You can get more snow removal done in less time with a smaller crew with a Michigan Tractor and its coordinated line of equipment. The CLARK EQUIPMENT COMPANY, CONSTRUCTION MACHINERY DIV., 2495 PIPESTONE ROAD, BENTON HARBOR 30, MICH. will be glad to tell you how.

Diatomite Filtration

279 . . . is offered by B-I-F INDUSTRIES, INC., 463 HARRIS AVE., PROVIDENCE 1, R. I., through use of its Vacuum Diatomite Filters, which besides offering low cost also give visual operation, easier inspection and accessibility. Write for full facts.

Erases Traffic Paint

280 Here's a unit that can be used for traffic paint removal, traffic line paint recessing, scarification of concrete surfaces for overlay and nonskid texture, removal of "washboard" asphalt surfaces. Details on the SC-360 available from CONCUT SALES INC., 1845 BELCROFT AVE., EL MONTE, CALIF.

Tow-Type Spreader For Dependable Snow Control

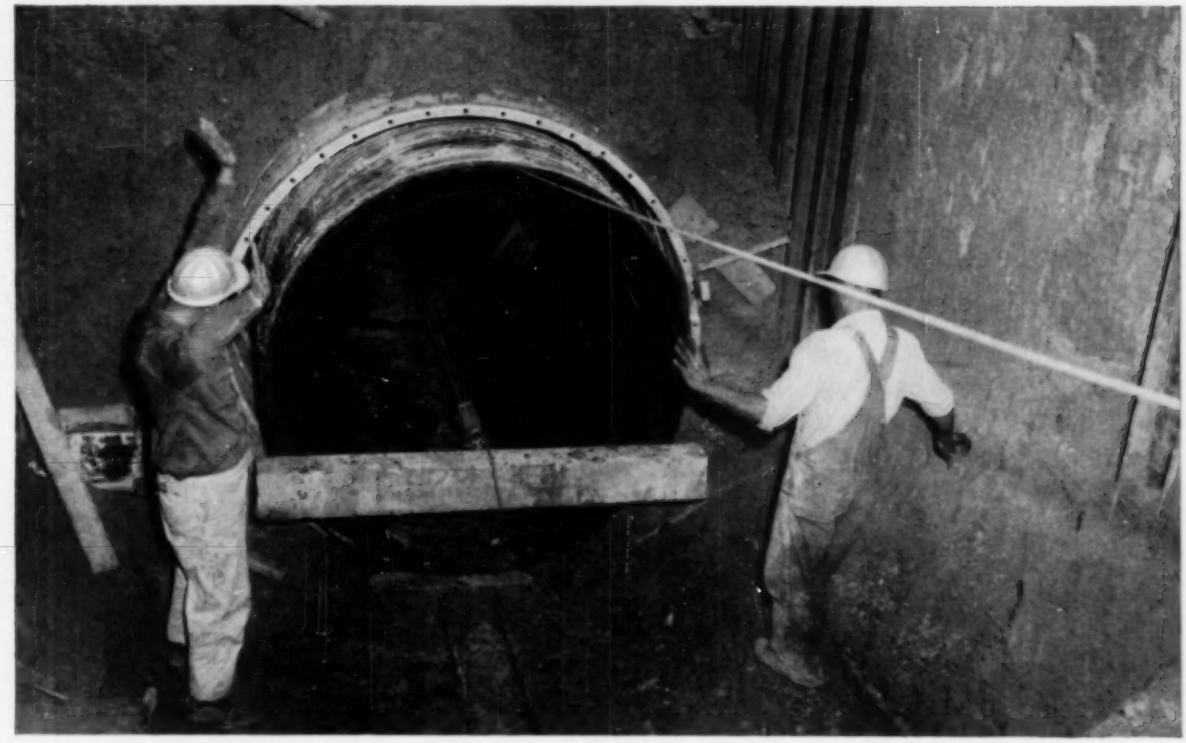
281 Users report that the Model 'J' spreader made by HIGHWAY EQUIPMENT CO., 622 D Ave., N. W., CEDAR RAPIDS, IOWA has exceptional versatility which permits handling of sand or sand salt mixtures of any consistency. It allows a constant spreading rate to be maintained and works equally well in reverse. Write for complete information.

(See page 48 for more Bulletins)

Fort Worth chooses Armco SMOOTH-FLO Pipe

reduces costs and installation time

Economical, Durable, Strong



Fort Worth, Texas, recently completed a 72-inch sanitary sewer main that had to cross under heavily-traveled Belknap Street and three railroad lines. Tunnels were constructed at these sites and Armco ASBESTOS-BONDED SMOOTH-FLO® Pipe was threaded inside the tunnels. SMOOTH-FLO was specified for two reasons:

1. The outside diameter of 72-inch I. D. SMOOTH-FLO Pipe is only about 73 inches, while the outside diameter of 72-inch I. D. rigid pipe is 88 inches. Since SMOOTH-FLO could be installed in a much smaller tunnel, considerable savings in material and labor costs resulted.

2. Lightweight SMOOTH-FLO Pipe is easier to thread inside a tunnel than heavier pipe, reducing installation time and expense.

How can Armco SMOOTH-FLO Pipe help *you* with *your* sewer problems? Fill in and mail the coupon. A qualified Armco Sales Engineer will be glad to call you for an appointment. No obligation, of course.

Armco Drainage & Metal Products, Inc.
4571 Curtis Street, Middletown, Ohio

Have an Armco Sales Engineer call me for an appointment.

New steels are born at Armco

Name_____

Address_____

City_____

State_____

ARMCO Drainage & Metal Products

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Long Wearing Fibers For Street Sweepers

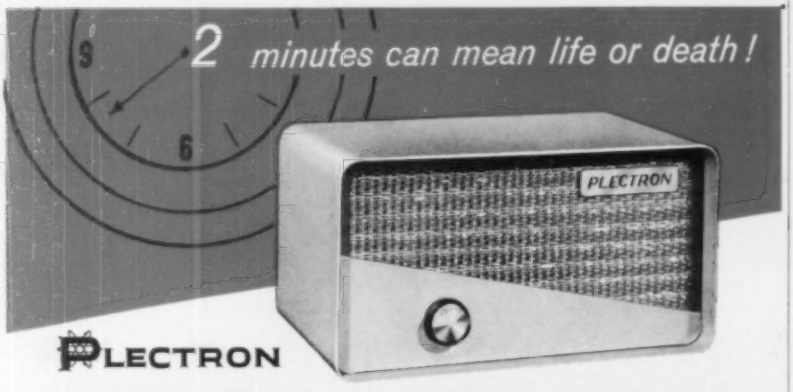
282 . . . are promised by RYNAL CORPORATION, 114 ST. JOSEPH ST., DEPT. A 1, ARCADIA, CALIF. with Radax coil filled with the longest wearing plastic bristles and designed to fit every make of power sweeper or pull type road broom. Write and discover the advantages Radax offers you.

Freshened Air Gives Employees a "Lift"

283 You can increase the comfort and efficiency of your personnel by using Aireactor Corporation's Gyrostatic Evaporator with your air conditioner. It dissipates odors and provides a delightful freshness that gives a "lift" to the atmosphere. For details write AIREACTOR CORP., 271 MADISON AVE., NEW YORK 16, N. Y.

All-Weather Fluorescents

284 A new development from G-E is the T10J, an all-weather fluorescent that grows brighter as temperatures grow colder. It can be used where temperatures drop to below 50°F. Write GENERAL ELECTRIC CO., LARGE LAMP DEPT. C-111, NELA PARK, CLEVELAND 12, OHIO.



PLECTRON

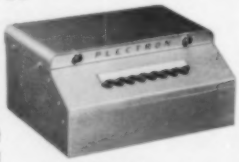
RADIO TONE ALERTING SYSTEMS

save time, lives and property!

When split seconds count a TONE activated receiver in his home, office or shop assures each fireman of receiving alarm messages in a prompt, efficient manner.

WITH PLECTRON TONE ACTIVATED RECEIVERS, you get these EXTRA advantages at no extra cost:

- **AUTOMATIC OR MANUAL RESET** . . . User selects either operation
- **ADJUSTABLE TIME DELAY** . . . "Live" time can be adjusted from 20/90 seconds
- **REMOTE SPEAKER OUTLET** . . . To connect remote speakers in other areas up to 300 feet



NEW fully automatic TONE GENERATOR

- Transformer powered
- Intermittent tone
- Monitor speaker
- Timed Tone Cycle

and now . . .

PLECTRON FACE SHIELD

For protection against: HEAT; SMOKE; WATER; FLYING EMBERS; DEBRIS; WIND; RAIN; DUST; SNOW

Complete protection, yet lightweight, easily installed, swings out of the way and has excellent optical qualities, unrestricted vision.

Designed and Manufactured by

PLECTRON CORPORATION

Overton, Nebraska

For Quick, Permanent Pipe Repair

285 ADAMS PIPE REPAIR PRODUCTS, 2453 MERCED AVE., P. O. BOX 3367, SOUTH EL MONTE, CALIF., offers Full-Seal clamps to repair broken or leaking cast iron or asbestos cement pipe. It requires tightening only four bolts to provide a complete seal to the damaged pipe. For complete details write for booklet No. 330-BMI.

Tamping and Cutting Hammers

286 G400 and D500 designed with side action have been introduced by the ARROW MFG. CO., 194 W. DAKOTA AVE., DENVER 9, COLO. New design features makes possibles faster tamping, breaking and cutting at lower cost. Write for descriptive literature.

Joint Sealing Compounds

287 Literature from THE PHILIP CAREY MFG. CO., CINCINNATI 15, OHIO, gives advantages and specifications of Careylastic poured joint compounds, which bond to sides of expansion joints, filling and sealing them against water and non-compressible materials.

Water Valve and Service Boxes

288 BUFFALO PIPE & FOUNDRY CORP., BOX 55-STATION B, BUFFALO 7, N. Y. Bulletin No. 35 describes the company's service, roadway, gas drip and adjuastable valve boxes for water and gas systems.

Street Paving, Construction Equipment

289 Product literature available from AEROIL PRODUCTS CO., INC., 101 WESLEY ST., DEPT. M6, SOUTH HACKENSACK, N. J., covers melting kettles for street maintenance work, heated asphalt patching roller, portable steam cleaner, smoothers, burners, torches, etc.

New Materials Handling Vehicle

290 AMERICAN ROAD EQUIPMENT CO., 4201 N. 26TH ST., OMAHA 11, NEB. announces extensive improvements in its model 620 Econmobile materials handling vehicle. It now has increased working weight, better load distribution, a new pump coupling, is more easily serviced. Write for details.

Time-Proven Voting Machines

291 By writing to THE SHOUP VOTING MACHINE CORP., 41 E. 42ND ST., NEW YORK 17, N. Y., you'll learn 25 reasons why 28 states use these voting machines to insure fast, accurate count and to speed election procedure.

Purer Water

292 A 38-page booklet deals with all phases of coagulation that will be of interest to municipalities. It can be obtained by writing to TENNESSEE CORP., 612-629 GRANT BLDG., ATLANTA 3, GA., producers of Ferri-Floc, which helps produce a purer water.

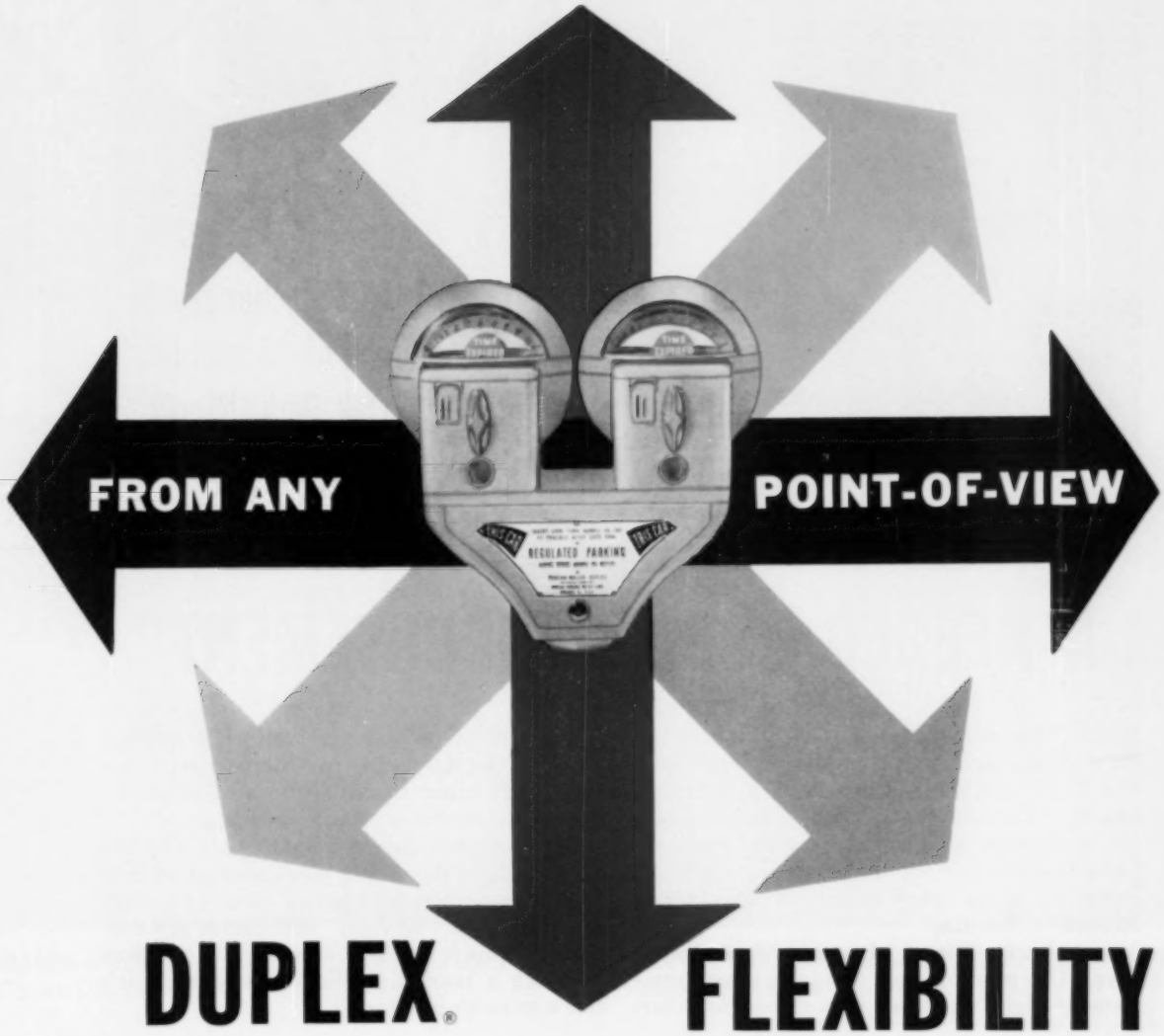
Easily Replace Damaged Parking Meter Standards

293 Rusted, bent or broken parking meter standards can be replaced at low cost and quickly, without digging, jack hammers or cement work by using corrosion-resistant aluminum bases made by FISCHER INDUSTRIES, P. O. BOX 153, MIDDLESEX, N. J. Write for additional information.

Sewage Gas Control Equipment

294 New "Varec" sewage gas control *Catalog* No. S-4 describes, illustrates, and includes schematics and technical material on new products, refinements and improvements in the sewage gas control equipment line of THE VAPOR RECOVERY SYSTEMS CO., 2820 N. ALAMEDA ST., COMPTON, CALIF.

(See page 58 for more Bulletins)



DUPLEX® FLEXIBILITY IS UNEQUALLED!

Versatile Duncan Duplex provides proper facing positions for *positive* meter identification regardless of the method of parking.

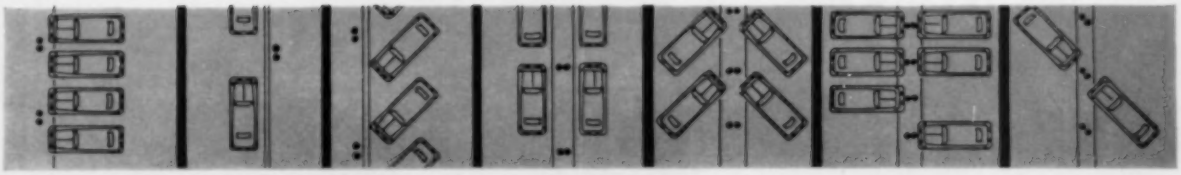
Eliminates motorists *confusion* and loss of good-will prevalent with ordinary double or twin meters.

Available in a wide range of time and rate combinations utilizing pennies, nickels, dimes, quarters and good-will tokens to meet *all* curb and off-street parking requirements.

DUNCAN PARKING METER

Division of NAUTEC Corporation

835 NO. WOOD STREET • CHICAGO 22, ILLINOIS



World's Largest Village (61,093) changes to big, bright street name signs of "Scotchlite" Reflective Sheeting. Says Oak Park, Illinois Director of Public Works Glenn Sunde...

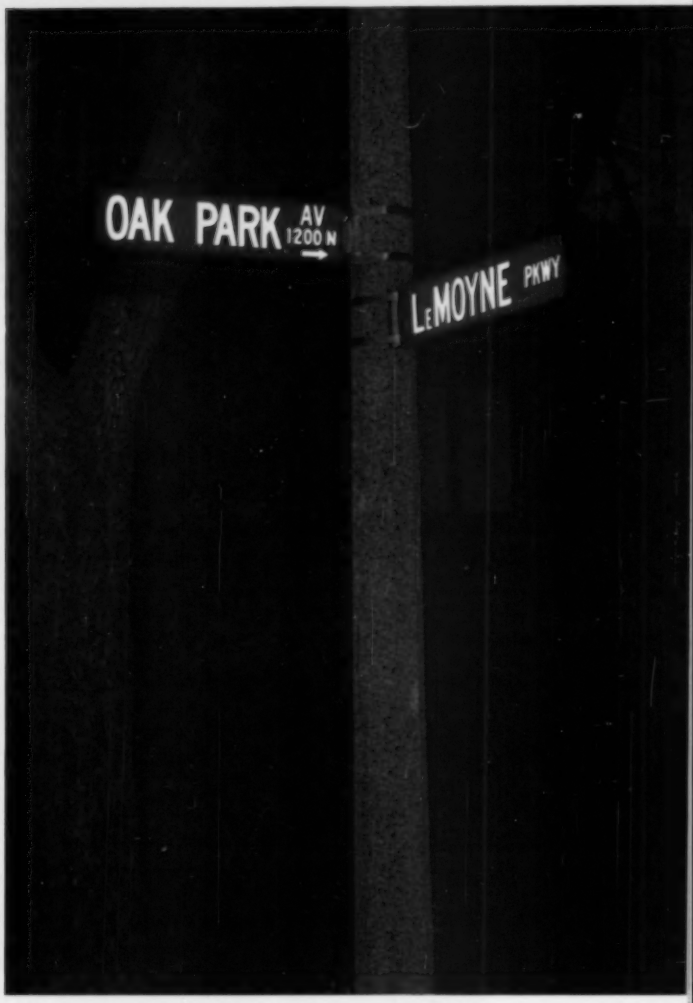
"AN EASY, LOW COST WAY TO MAKE A NEEDED PUBLIC IMPROVEMENT"

To help the ever-increasing flow of traffic find its way through and around Oak Park with the least confusion and delay, a complete change in street name signs is being made. Plain, average-size, black on white signs are being replaced with larger, more readable, white on green street signs of "Scotchlite" Reflective Sheeting.

Oak Park Village Manager Mark Keane says, "Our need for clear, readable street name signs at night was most important. Reflectorization with "Scotchlite" Sheeting quickly gave us the right answer. Our new signs are also much easier to see and read during the day, when traffic is especially heavy."

It's a welcome change, too. Director of Public Works Glenn Sunde has been pleased to hear even long-time residents say these new signs are a big help. "In fact," Mr. Sunde has concluded, "this is not only an easy, low cost way to make a needed public improvement. It's also a *popular* program."

CHANGE-OVER to popular, new street name signs at every Oak Park corner is almost complete.



CLEARLY READABLE at night, signs of "Scotchlite" Sheeting never leave drivers in the dark.

LARGE LETTERS, 4" high, on bright green backgrounds give excellent legibility to Oak Park's new signs. Shop Superintendent Bill Stephens holds a panel he has just removed from the "Scotchlite" Vacuum Applicator, which automatically bonded the reflective sheeting to the aluminum blank. Oak Park also makes and maintains its own traffic signs.

DO PEOPLE LIKE the street name signs in your community? If there's any question, see your 3M Representative or write Dept. RBK-81, The 3M Co., St. Paul 6, Minnesota.

SCOTCHLITE®
BRAND
REFLECTIVE SHEETING

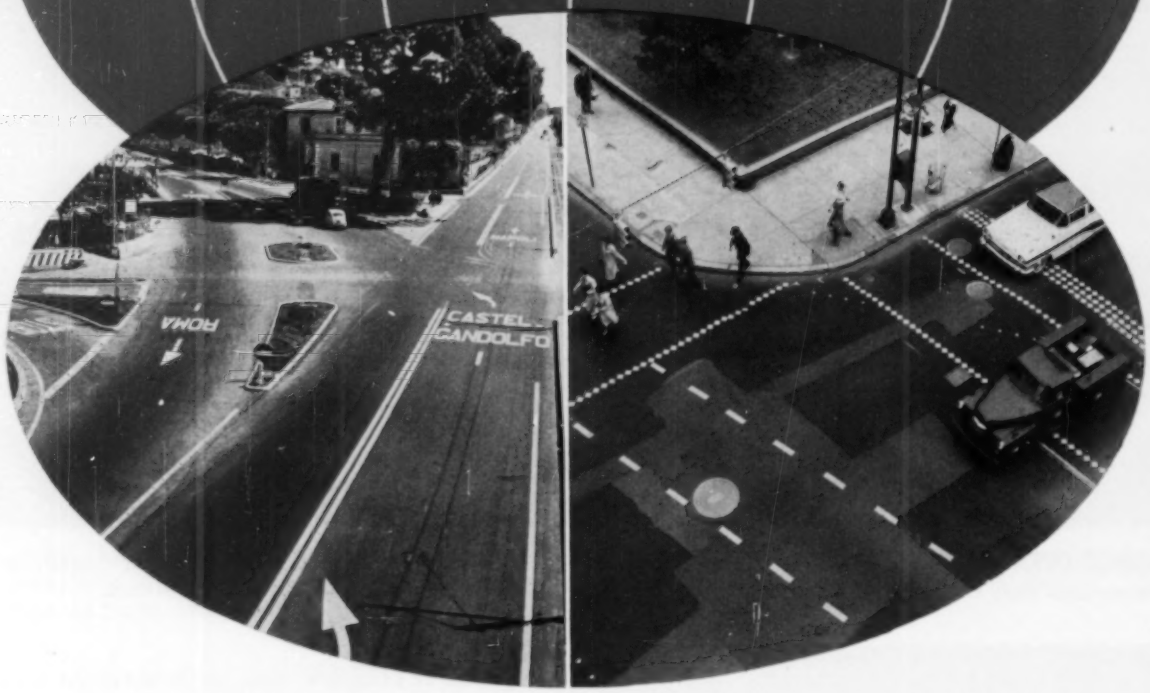
MINNESOTA MINING AND MANUFACTURING COMPANY
. . . WHERE RESEARCH IS THE KEY TO TOMORROW

"SCOTCHLITE" IS A REGISTERED TRADEMARK OF THE 3M COMPANY

On Both Sides of the World

PRISMO PLASTIX SD

Makes Highways Safer



You can travel one of the roads that lead to Rome or a busy street in any progressive city around the globe. Either way, it's quite likely you'll find Prismo Plastix SD marking the pavement to guide and guard motorists and pedestrians.

In fact, you'll find Prismo safety marking materials doing their life-saving job in nearly every country throughout the free world.

Prismo research, which created the first reflective highway marking, developed Plastix SD in answer to a need for something more permanent than liquid materials. A cold flow thermo-plastic, Plastix SD can be put down quickly and easily by hand or machine. Its own self-contained adhesive bonds it to the pavement and the action of traffic completes the job. It is available in a variety of pre-cut shapes and legends, as well as 150 ft. rolls. Plastix SD is definitely today's best answer for a pavement marking material which meets tomorrow's needs.

PRISMO

PRISMO SAFETY CORPORATION

HUNTINGDON, PENNSYLVANIA, U.S.A.

Postage Will be Paid by Addressee

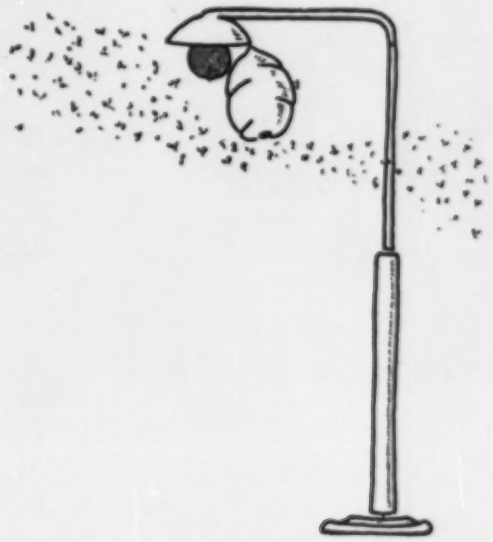
No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

Reader's Service Dept.

IN THE DARK?



If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on page 45

251	267	283	299	315	331	347	363	379	395
252	268	284	300	316	332	348	364	380	396
253	269	285	301	317	333	349	365	381	397
254	270	286	302	318	334	350	366	382	398
255	271	287	303	319	335	351	367	383	399
256	272	288	304	320	336	352	368	384	400
257	273	289	305	321	337	353	369	385	401
258	274	290	306	322	338	354	370	386	402
259	275	291	307	323	339	355	371	387	403
260	276	292	308	324	340	356	372	388	404
261	277	293	309	325	341	357	373	389	405
262	278	294	310	326	342	358	374	390	406
263	279	295	311	327	343	359	375	391	407
264	280	296	312	328	344	360	376	392	408
265	281	297	313	329	345	361	377	393	409
266	282	298	314	330	346	362	378	394	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 8-61

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on page 45

251	267	283	299	315	331	347	363	379	395
252	268	284	300	316	332	348	364	380	396
253	269	285	301	317	333	349	365	381	397
254	270	286	302	318	334	350	366	382	398
255	271	287	303	319	335	351	367	383	399
256	272	288	304	320	336	352	368	384	400
257	273	289	305	321	337	353	369	385	401
258	274	290	306	322	338	354	370	386	402
259	275	291	307	323	339	355	371	387	403
260	276	292	308	324	340	356	372	388	404
261	277	293	309	325	341	357	373	389	405
262	278	294	310	326	342	358	374	390	406
263	279	295	311	327	343	359	375	391	407
264	280	296	312	328	344	360	376	392	408
265	281	297	313	329	345	361	377	393	409
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HERE'S A SOLUTION

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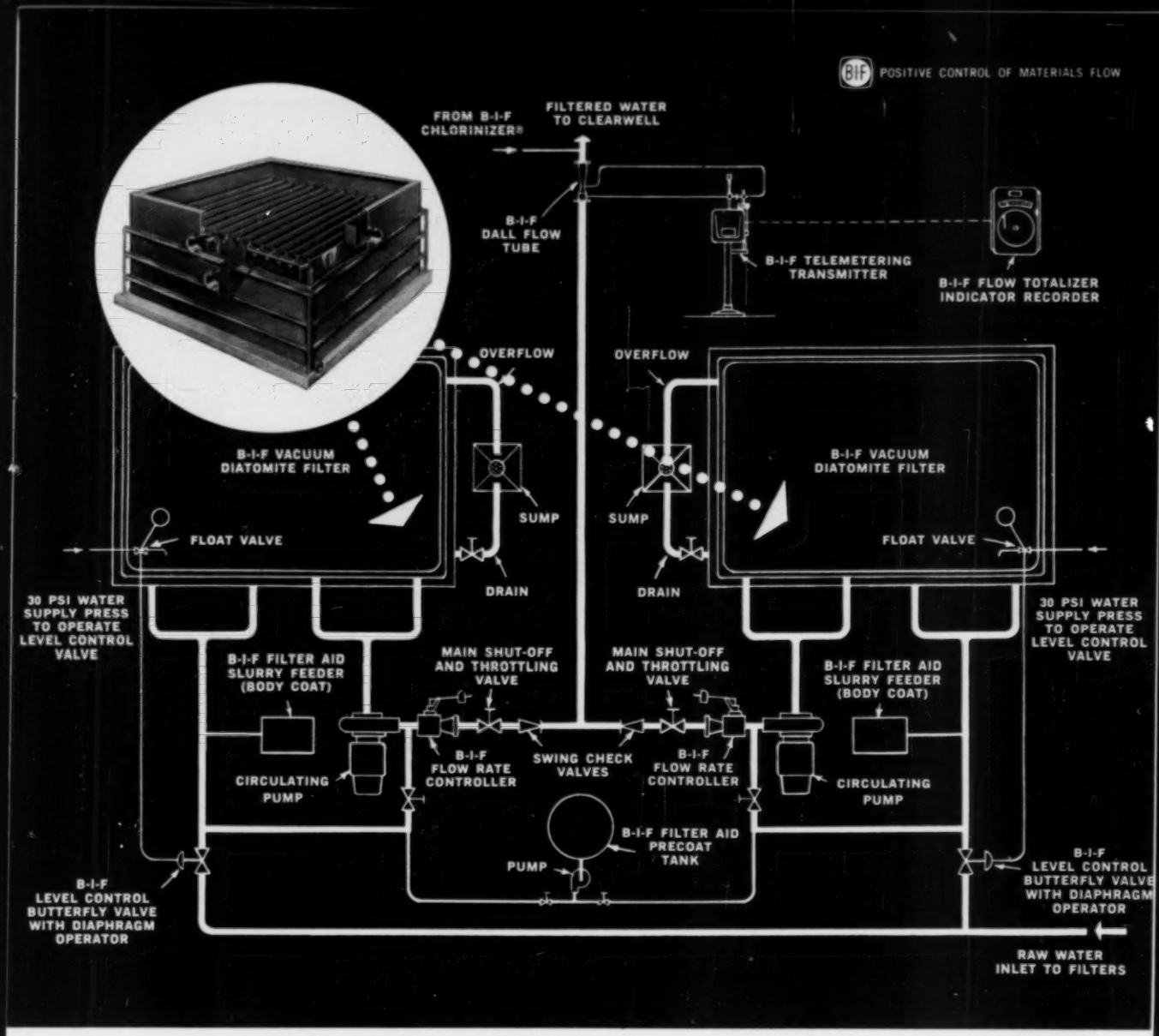
THE AMERICAN CITY MAGAZINE

470 PARK AVENUE SOUTH

NEW YORK 16, N. Y.

Reader's Service Dept.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.


B·I·F POSITIVE CONTROL OF MATERIALS FLOW
FROM B-I-F CHLORINIZER®
FILTERED WATER TO CLEARWELL
B-I-F DALL FLOW TUBE
B-I-F TELEMETERING TRANSMITTER
B-I-F FLOW TOTALIZER INDICATOR RECORDER
OVERFLOW
OVERFLOW
B-I-F VACUUM DIATOMITE FILTER
B-I-F VACUUM DIATOMITE FILTER
SUMP
SUMP
FLOAT VALVE
FLOAT VALVE
DRAIN
DRAIN
30 PSI WATER SUPPLY PRESS TO OPERATE LEVEL CONTROL VALVE
30 PSI WATER SUPPLY PRESS TO OPERATE LEVEL CONTROL VALVE
B-I-F FILTER AID SLURRY FEEDER (BODY COAT)
B-I-F FILTER AID SLURRY FEEDER (BODY COAT)
MAIN SHUT-OFF AND THROTTLING VALVE
MAIN SHUT-OFF AND THROTTLING VALVE
B-I-F FLOW RATE CONTROLLER
SWING CHECK VALVES
B-I-F FLOW RATE CONTROLLER
CIRCULATING PUMP
CIRCULATING PUMP
B-I-F FILTER AID PRECOAT TANK
PUMP
B-I-F LEVEL CONTROL BUTTERFLY VALVE WITH DIAPHRAGM OPERATOR
B-I-F LEVEL CONTROL BUTTERFLY VALVE WITH DIAPHRAGM OPERATOR
RAW WATER INLET TO FILTERS

New **B-I-F** *low cost filtration system meets peak load demands!*

You no longer need high cost expansion to meet peak load demands. At a fraction of the cost formerly required, B-I-F can provide a completely integrated filtration and treatment system. The low installation, operational and maintenance costs save thousands of taxpayers' dollars.

This B-I-F system is built around low cost, performance proven Vacuum Diatomite Filters. The filters' open tank design permits simple visual operation . . . and easier inspection and accessibility. Fiberglass construction eliminates annual painting and repair of protective linings. Chemical pre-treatment is simplified. Wash water requirements are minimized.

From its line of compatible components . . . filters, chemical feeders, instrumentation, butterfly valves, etc. . . . B-I-F will provide a coordinated system to meet your specific peak load requirement. A B-I-F system requires minimum start-up time . . . assures maximum reliability, flexibility for further expansion, and dependable, single responsibility.

Write for the facts! B-I-F Industries, Inc., 463 Harris Ave., Providence 1, Rhode Island.

B·I·F **Industries**

BUILDERS-PROVIDENCE • PROPORTIONEERS • OMEGA METERS • FEEDERS • CONTROLS / CONTINUOUS PROCESS ENGINEERING

Assurance of continuity of service

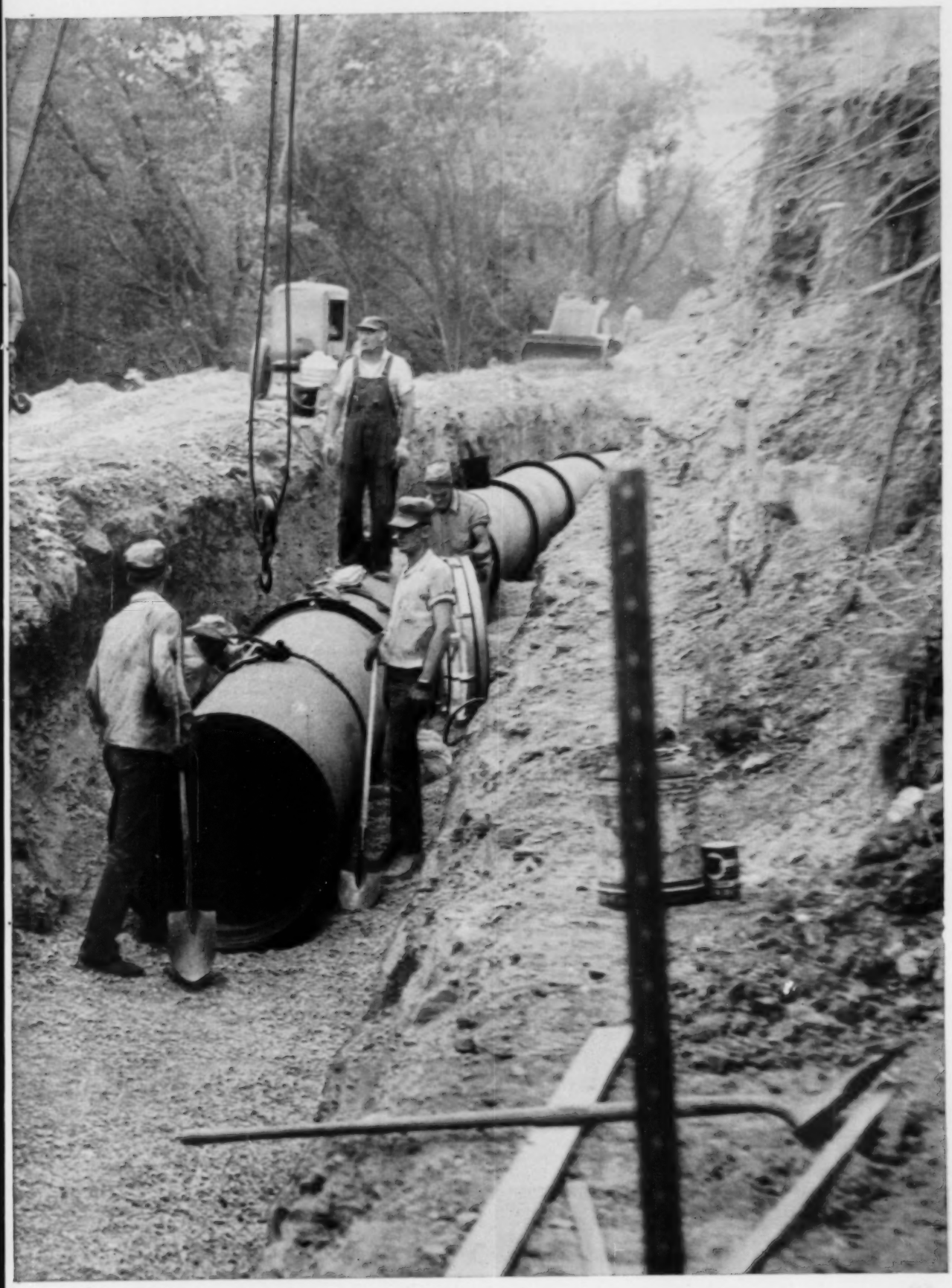
Cement-lined cast iron pipe always delivers a full flow of water and rarely requires repair. These two features alone offer ample assurance of water when you most need it. But there are other reasons also:

Cast iron pipe is flexible enough to permit deflection, both during and after installation; yet, its bottle-tight joints are tight enough to resist hundreds of pounds of pressure.

Rugged cast iron pipe withstands common disturbances such as overhead traffic, ground movement and water hammer; it installs easily; it performs efficiently day after day . . . and will continue to do so for over a century.

CAST IRON PIPE
THE MARK OF PIPE THAT LASTS OVER 100 YEARS

CAST IRON PIPE RESEARCH ASSOCIATION
Thos. F. Wolfe, Managing Director
3440 Prudential Plaza, Chicago 1, Illinois



FREE catalogs

You will find of interest

Write to address given or circle corresponding number on free post card on page 53.

A New Aerial Ladder For Fire Service

295 . . . is being offered by the SEAGRAVE CORP., COLUMBUS, OHIO. Measuring from 65' to 85' from the ground to bottom of the platform, the boom is made of extruded tapered high tensile steel tubing which can be fully raised, rotated 360° in 60 seconds with 1000 pounds of load. Write for details.

Precision-Parks Cars At Less Cost

296 In metropolitan areas where land cost is high and space limited, Pigeon Hole Mechanical Parking system proves its worth in lower construction costs, lower operating costs, higher profits. WESTERN INDUSTRIES, INC., 2736 W. 36TH PLACE, CHICAGO 32, ILL., will provide complete information.

Maximum Water Supply From Your Well

297 . . . is promised by the COOK WELL STRAINER CO., 6330 GLENWAY AVE., CINCINNATI 11, OHIO with its exclusive V-shaped slot constructed well strainer available in red brass, silicon bronze, Armco iron, or stainless steel. Write for details.

MH

Roll-call for water

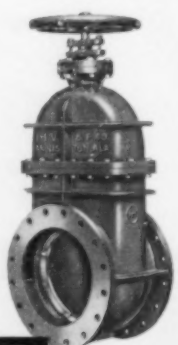
Indians Say: **"Ugh! Too Many White Man!"**

In 1814, when Jackson defeated the Creek warriors at Horseshoe Bend, Ala., it probably never had occurred to anyone that someday there would be so many people in the east-south-central States that there could be a shortage of water!

But that Indian defeat was the beginning of a new era. It set the stage for settlement of the Deep South by white people. Immigrants poured into the section, started growing cotton, then corn, then livestock. Later they discovered coal, iron ore and other minerals until sections of this country today support a great industrial economy.

It would have been hard for Andrew Jackson to believe that there ever would be 29 public water systems in this Deep South country, each supplying 25,000 or more population; but that 5 (16%) of the 29 water systems would be of doubtful efficiency and 4 (13.7%) of them would be definitely deficient. Yet, this section of the U.S. is in better shape than the country as a whole where the definite water system deficiency runs 26.6% and the doubtful efficiency totals 23.2%.

Kentucky
Tennessee
Alabama
Mississippi



M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA
A Walworth Subsidiary

Sewage Grease and Odor Control

298 . . . is possible economically. How? By trickling a few ppm of Ozene into your sewage system. It emulsifies grease to keep your system free-flowing and reduces maintenance in sludge lines, settling tanks and filter beds. Write for a copy of the new descriptive booklet from SOLVAY PROCESS DIV., 61 BROADWAY, NEW YORK 6, N. Y.

Air Release and Inlet Valve

299 This compact, combination unit with 2-inch connection automatically releases air accumulations and breaks vacuums within water supply lines. Vents large quantities of air when filling line. For *Bulletin* 1205, write SIMPLEX VALVE AND METER CO., DEPT. MI-41, 7 E. ORANGE ST., LANCASTER, PA.

Garbage, Rubbish Can Racks

300 SANI-MFG. 502 AVE. G, LUBBOCK, TEXAS, has issued a 4-page descriptive bulletin on its Sani-Kart, Sani-Susans and Sani-Racks—designed to make handling, moving, and storing of backdoor garbage and trash cans easier and more sanitary.

A Flexible Traffic Guide

301 . . . that is easily installed or replaced, stands up well under traffic abuse or wide temperature range. It's reflectorized for night visibility and is available from SAFEWAY FLEXIBLE TRAFFIC GUIDES, INC., P. O. BOX 868, ATLANTA 1, GA. Write for details.

Galvanized Ware Bulletin

302 A booklet describing a variety of galvanized goods to meet the needs of municipalities is available by writing to REEVES STEEL AND MFG. CO., DOVER, OHIO. It describes such things as pails, baskets and other containers, as well as corrugated and steel roofing and siding, etc.

New Bulletin on Butterfly Valves

303 A new bulletin which describes these completely new designs in rubber seat butterfly valves includes models from 3" to 144" and for pressures from vacuum to 150 psi. Write for Bulletin 6. HENRY PRATT CO., 319 W. VAN BUREN ST., CHICAGO 7, ILL.

Versatile Sweepers

304 These mechanical sweepers work well on residential streets, in congested downtown areas, parks, airports, and on high-speed expressways. They're safe, have big hopper capacity and low operating cost. Write MOBIL SWEEPER, 3260 E. SLAUSON AVE., LOS ANGELES 58, CALIF.

Water Service Pipe

305 . . . that will serve now and last more than a century is assured you by JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE, CHICAGO 80, ILL. with its cast iron pipe. Clow offers a complete line of pipe, fittings, valve and fire hydrants. Write for complete information.

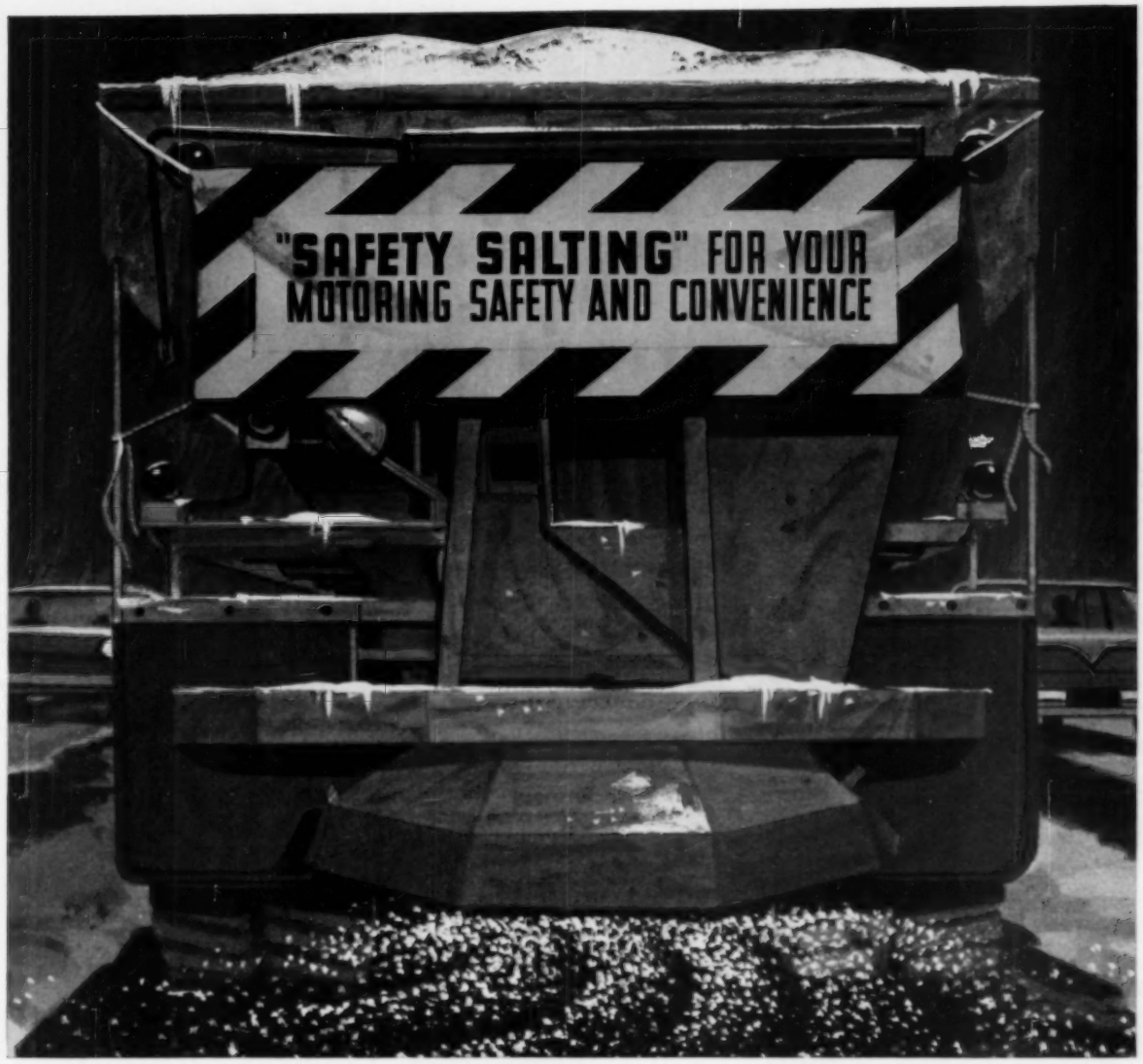
Bores Earth Without Trenching

306 For an easy, fast, low-cost way to drill holes under lawns, highways, streets of walks without trenching, you will want to write for a free catalog describing the new CMC horizontal earth drill from the CONSTRUCTION MACHINERY CO., WATERLOO, IOWA.

Street Signs Visible Day and Night

307 Street name signs made of "Scotchlite" reflective sheeting have received favorable public comment in 23 communities in St. Louis County, Mo. using them. They like Scotchlite's readability day and night and its uniformly attractive appearance. For more facts write DEPT. RBK-71, 3M CO., ST. PAUL 6, MINN.

(See page 68 for more Bulletins)



NOW! An ice control program that cuts accidents and complaints!

The Morton Safe-T-Salt* Ice Control Program can help you accomplish two important jobs this winter . . . public safety and public relations!

Streets are safer when they are salted with Safe-T-Salt, because it is a screened and graded rock salt that gets rid of dangerous ice and snow in the quickest, safest, most economical way possible.

The name "Safe-T-Salt" was developed to explain this job to the public. As you know, too many uninformed citizens complain about de-icing programs every winter. The "Safe-T-Salt" name will cut down those complaints by emphasizing the safety value of salting treacherous pavements . . . will keep the public aware of your efforts to reduce winter driving hazards.

The truck banner in the illustration above represents one way that safety salting can be made popular. These banners are available free to Morton Salt customers. Your Morton representative can supply them and other material . . . as well as furnishing you with helpful publicity features for your local newspapers, explaining the value of de-icing programs. He'll be glad to help you start planning *now* for a safer and happier winter.

FOR MORE INFORMATION ON MORTON SAFE-T-SALT, MAIL THIS COUPON TODAY

Please have a Morton Salt representative call me for an appointment to explain all the advantages of your Safe-T-Salt program.

Name_____

Title_____

Address_____

City_____ Zone_____ State_____

MORTON SALT COMPANY

INDUSTRIAL DIVISION

Dept. AC8 110 N. Wacker Drive, Chicago 6, Ill.

*Safe-T-Salt is a trademark of the Morton Salt Company

"The H-30 PAYLOADER®

with Drott '4-in-1' bucket does not appear to have any limitations" *says Wm. R. Elden, Director of Public Works, City of Elmhurst, Illinois*

"It does everything Hough says it can do," continues Mr. Elden. "On snow removal it is fast and the four-wheel-drive provides adequate traction at all times. When working around residential property, private driveways and lawns, it does not damage stone curbs or driveway surfaces. It operates over snow-covered lawns and medians without tearing the surface, and is maneuverable in small areas."

Best by Test

"Before buying the H-30, we tried out three other loaders, but the H-30 impressed all with its versatility, including myself and the members of the City Council. The decision to purchase it was unanimous."

Easy to Operate

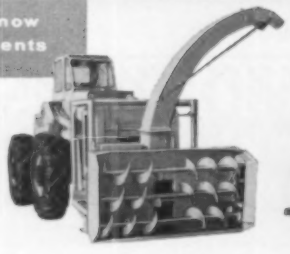
Operator Bruce Turleys says, "I've done just about everything with it including bulldozing, grading, scraping and clamshell clean-up, clamshell dumping, stumping and tree-root removal.

"The bucket selector gauge is absolutely accurate so I know the exact pitch of the bucket or cutting blade by merely glancing at it. I can make the machine do exactly what I want it to do.

"The visibility is excellent. Even with the cab doors closed there is no obstruction to block my vision of the job. The operating compartment is comfortable and all hand and foot controls are convenient and readily available. I can run it long hours without fatigue."

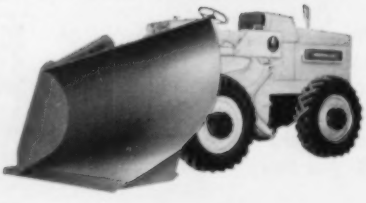
There is a proven PAYLOADER size to fit every need, and a variety of Allied Equipment to extend their usefulness to many specialized jobs. Your Hough Distributor is ready to show you how PAYLOADER versatility stretches the equipment dollars.

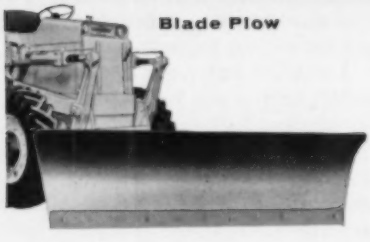
Other Snow Attachments



Rotary Plow

"V" Plow





Blade Plow

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

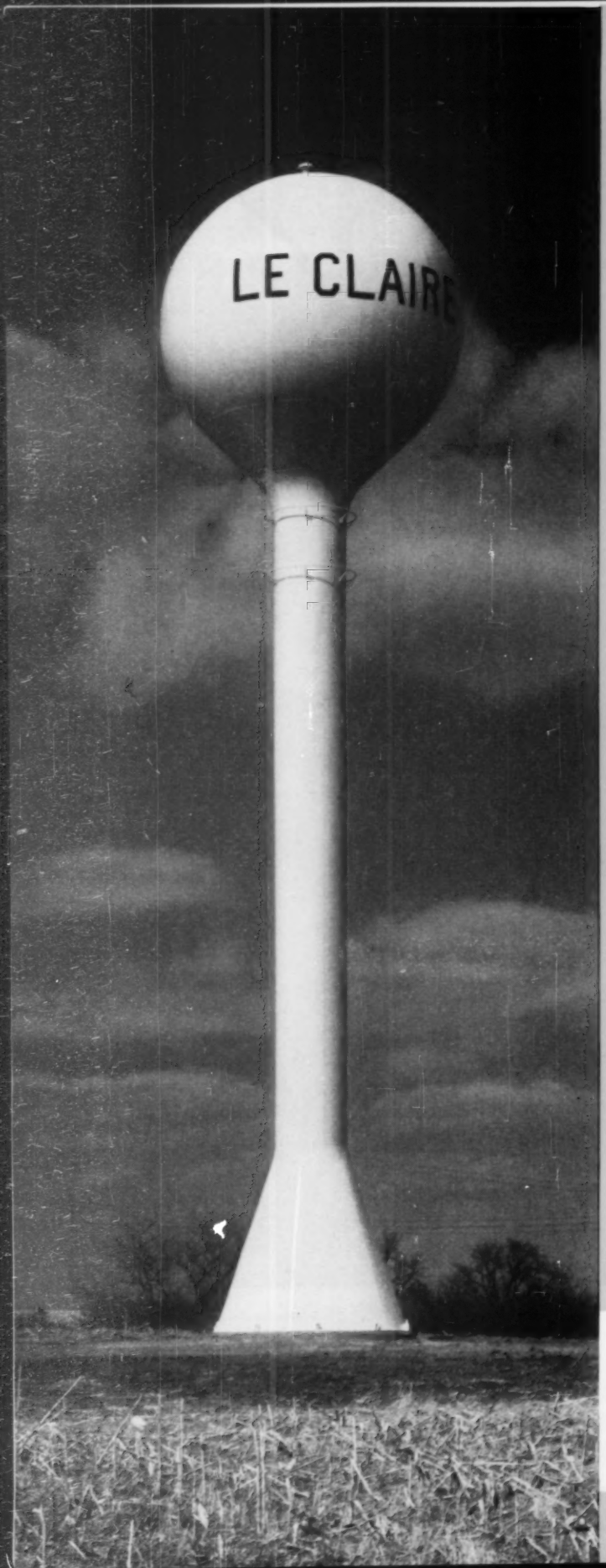
HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.

THE FRANK G. HOUGH CO., 71[illegible] Sunnyside Ave., Libertyville, Ill.

Send data on PAYOADER models and Allied Equipment for public works.

Name
Title
Dept.
Street
City State

8-8-3



This Modern Landmark Usually Costs Less

The advantages of selecting a graceful CB&I Watersphere® for your community are both aesthetic and practical:

1. It identifies your community and its officials with modern, efficient management.
2. Minimum ground area required.
3. The base can be used for pumping and filtering equipment or for storage. Separate costly buildings are not necessary.
4. The smooth steel surface from top to bottom, free of external ladders and other obstructions, reduces maintenance costs.
5. Special landscaping is avoided. Modern aesthetic design blends with natural surroundings.

CB&I Waterspheres are ideal for communities requiring from 25,000 to 250,000 gallon storage capacity to assure uniform pressure and constant fire protection. Write for Bulletin A-40, giving full details. Chicago Bridge & Iron Company, 332 S. Michigan Ave., Chicago 4, Ill. Offices and subsidiaries are located throughout the world.

CB&I

built it!

CB-618

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 53.

Portable, Standby Electric Power

308 Have you seen the latest catalog release from WINCHARGER CORP., DEPT. M161, SIOUX CITY 2, IA.? It will bring you up to date on the well-known, dependable Winco line of portable and standby electric power plants and accessories.

Water Supply Filters

309 Complete engineering data, construction and operating information are available to water works engineers interested in the Model RJ, a heavy-duty municipal water supply filter incorporating new principles of diatomite filtration. Write SPARKLER MFG. CO., N. SECOND ST., CONROE, TEXAS.

Snow Blowers

310 Checking on equipment that will assure efficient snow removal operations this winter? Then you'll want to review the current line of detachable-type snow blowers offered by SICARD INDUSTRIES, INC., 753 W. MAIN ST., WATERTOWN, N. Y. Folder gives complete specifications.

Sewer Cleaning Equipment

311 Emergency kits for opening stoppages and removing roots, hydraulic drive sewer and pipe cleaning equipment, sewer drag tools, sectional and sewer rods are included in the complement of sewer cleaning equipment from W. H. STEWART, INC., 202 KRATZ AVE., SYRACUSE, N. Y.

Dependable Fire Radios

312 For a rugged radio for your fire department's use you want one that gives longer equipment life, fewer outages, less maintenance and low communications cost. Such a radio is made by MOTOROLA COMMUNICATIONS AND ELECTRONICS, INC., 4501 AUGUSTA BLVD., CHICAGO 51, ILL. Write for details.

For Beautiful Lawns

313 . . . with less time, energy and cost you will want to write for the new data sheet available from LOCKE MOWER DIV., LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN. describing its fully chain-driven triplex mowers.

To Keep Fleet Costs Low

314 . . . you will want to write to Robert J. Kreusser, Fleet Sales Manager, WILLYS MOTORS, INC., TOLEDO 1, OHIO, for detailed information on Jeep Vehicles. Their rugged construction keeps maintenance low and resale value high and they give great versatility although inital cost is low.

Keep Pipe Installation Costs Low

315 . . . by using this earth boring tool for boring under streets, freeways, gardens and pavement is the advice of HYDRAUGER CORP., LTD., 581 MARKET ST., SAN FRANCISCO 5, CALIF. This tool eliminates trenching, reduces costs. Write the Company for full details.

Versatile Loader

316 The Payloader H-30 with a size to fit every need and a variety of equipment will do such jobs as grading, scraping, clamshell cleanup or dumping, stumping, tree removal and many others. Details are available from THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

24-Hour Service for Your Water Supply

317 In order to help you provide an unfailing water supply LAYNE & BOWLER, INC., MEMPHIS 8, TENN. has set up an organization of trained technicians and quality parts throughout the world that are quickly available to you. Find out how it works by writing for *Bulletin* 100.

For Easy Conversion To Luminaires

318 LINE MATERIALS INDUSTRIES, MILWAUKEE 1, WIS. offers the latest in design in a luminaire that can be installed on your present post top lighting standards. Write for full details on the economy and efficiency of this new system of converting to luminaires.

Convenient Parking Meters

319 For a meter that is designed to serve the convenience of the motorist and the municipality, accepting any denomination of coin up to and including quarters, that is adjustable for any time limit, automatic or manual, write MAGEE-HALE PARK-O-METER CO., OKLAHOMA CITY, OKLA. for particulars.

Soil Cement Motion Picture

320 Newly-revised 16mm, sound and color film describes the standard ASTM-AASHO laboratory procedures for testing soil-cement and the latest short-cut testing. For loan, write PORTLAND CEMENT ASSN., 33 W. GRAND AVE., CHICAGO 10, ILL. Request *Standard Laboratory Control of Soil-Cement Mixtures* film.

(See page 65 for more Bulletins)

MIRO-FLEX CO., INC.
1824 E. 2nd St. (Box 514)
Wichita 14, Kans.

NSE SIGNS AND STAMPINGS
P.O. Box 1069
Birmingham 1, Ala.

LYLE SIGNS, INC.
2720 University Ave. S.E.
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GRIMM STAMP & BADGE CO.
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TRAFFIC REGULATORS that work for only 1¢ a week

It's hard to believe that the finest quality traffic control devices, DIE EMBOSSED Signs, cost only a penny a week. Day and night, in any weather, they do their job of moving or regulating traffic so economically it's penny wise and pound foolish to use anything but deep-drawn, three dimensional, safety proved DIE EMBOSSED signs.

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ORDER DIRECT FROM THESE MANUFACTURERS

☐ Please send me a copy of your catalog.

☐ Please furnish a quotation on the attached list of traffic signs.

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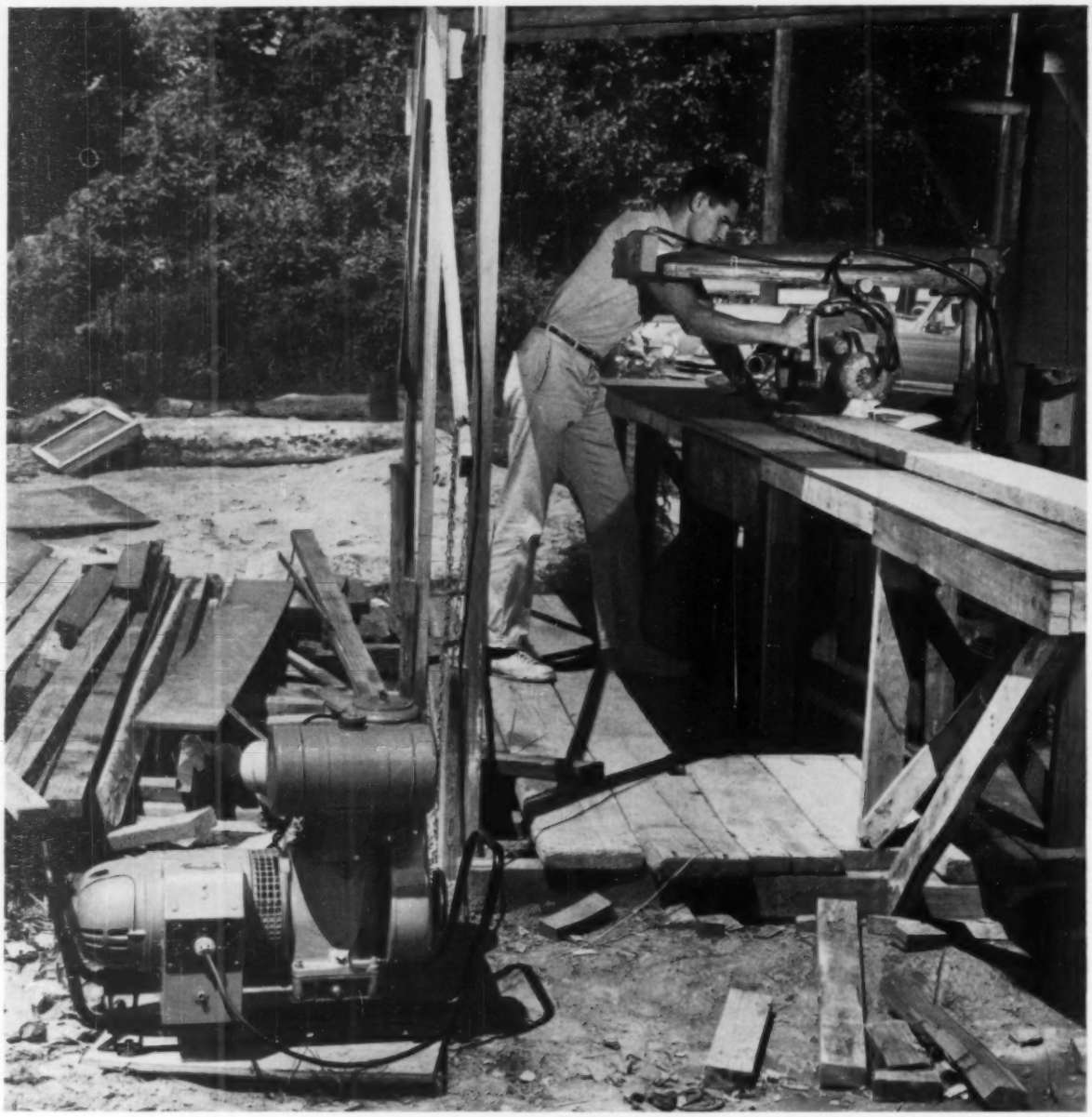

USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

POWER...that's ready when you are

With Homelite Carryable Generators on the job, you'll always have a dependable source of power . . . that's ready when you are . . . to operate labor-saving tools, brilliant floodlights and other electrical equipment. You can choose from Homelite's famous-for-quality 2-cycle engine driven models. Or pick from Homelite's new line of economy-priced 4-cycle engine-driven generators (available for operation on gasoline or LP gas). There are 115 volt, 115/230 volt and high-cycle units. Sizes from 1500 watts to 5000 watts. Every one constructed for heavy-duty operation, light weight for easy carrying and featuring Homelite's exclusive TOOL-SAVER voltage control.

Write for details today. We're ready when you are to demonstrate any model Homelite generator on your job.

Illustration shows Homelite Model 42A115/230 generator. Capacity: Up to 5000 watts of 115 and 230 volt, 60 cycle AC power. Engine: 4-cycle Wisconsin

Homelite factory branches are located throughout the country. Your nearest one is as close as your phone. Call them or write for convincing demonstration or rapid service in any way.

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CARRYABLE
CONCRETE VIBRATORS
PUMPS • **GENERATORS** • BLOWERS

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Your City Can Improve Services and Reduce Costs

...by taking advantage of the improved municipal equipment offered below.

Write to address given or circle corresponding number on free post card on page 53.

Multi-Duty Bucket

321 The DROTT MANUFACTURING CORP., MILWAUKEE 15, WIS., would like to show you how its new TD-15 Four-In-One can double for a whole "spread" of construction equipment to get hundreds of job handling working positions with each action. Write for information or demonstration.

Traffic Fines Paid On The Spot

322 . . . with Duncan's Fine-O-Meter boxes. This convenient system increases voluntary payments of fines without complaints, increases payments by tourist violators. For good public relations, write for information to DUNCAN PARKING METER, DIV. OF NAUTEC CORP., CHICAGO 22, ILL.

Speed Fire Fighting

323 With a Spicer Turbo-Matic transmission on your fire department pumper you save valuable minutes because no gear shifting is required; and get safer driving because the driver has two hands on the wheel at all times. For full information, write DANA CORP., TOLEDO 1, OHIO.

2-Way Radio

324 Citizens Band two-way radio provides instant communications, effects savings for municipal users—permits immediate contact with personnel in the field, other parts of building. For details on the CBD line, write PEARCE-SIMPSON, INC., 2295 N.W. 14TH ST., MIAMI 35, FLA.

Diesel Engines for Power

325 Building the largest line of heavy duty diesel engines in the Western hemisphere in sizes from 10 to over 12,000 hp in a single engine gives manufacturing know-how to NORDBERG MFG. CO., MILWAUKEE 1, WIS., now celebrating its 75th anniversary.

Chip Brush Easily

326 For a brush chipper that is easy to operate, giving the greatest efficiency while requiring the lowest upkeep and maintenance cost, you will want to write MITTS & MERRILL, 1003 SO. WATER ST., SAGINAW, MICH., for full details on its new 1960 models which offer many new features.

Better Repair of Concrete Floors

327 *Publication* EPMM-4 offers a 7-step procedure for repairing damaged floors by using Embeco pre-mixed mortar, and shows how strong, tough, non-shrink repairs can be made to cracks, holes and ruts in concrete floors. Write THE MASTER BUILDERS CO., CLEVELAND 18, OHIO.

New Diesel Tractor

328 M-F rugged diesel-powered 203 or 205 Industrial tractors are said to have outstanding power, economy, versatility and maneuverability and long life. Write MASSEY-FERGUSON INDUSTRIAL DIV., 12601 SOUTHFIELD ROAD, DETROIT 32, MICH., for details.

Weed Killer Booklet

329 A new, 16-page, full-color cartoon booklet imaginatively describes the role of weed killers today. Write for a copy to DIAMOND ALKALI CO., 300 UNION COMMERCE BLDG., CLEVELAND 14, OHIO.

Use Your Sewage Gas

330 . . . by using ROIline Engines to fill your city's power needs. They burn sewage gas for fuel. Write for descriptive literature to WAUKESHA MOTOR CO., WAUKESHA, WIS.

Traffic Gates

331 *Bulletin* 954 gives complete information on N-N electric traffic gates, which give reliable performance and full protection at bridge approaches and railroad highway crossings. Four models available. Write WESTERN RAILROAD SUPPLY CO., 2736 W. 36TH PLACE, CHICAGO 32, ILL.

Fire Alarm System

332 New *Bulletin* SM-59-361 describes the Phon-O-Matic municipal fire alarm and emergency communication systems and plant protection systems which offer centralized control, easy operation, and instant action. Write NOTIFIER CORP., 3700 N. 56TH ST., LINCOLN 4, NEBR.

Digs Trenches Faster

333 For a line of machines that will dig from 5′ deep trenches up to 19′ from 6″ wide up to 72″ and move at speeds of from 21 to 25 fpm you will want to write for the Ladder Trenchliner *Bulletin* from the PARSONS CO., NEWTON, IOWA.

Remove Sand From Well Water

334 EQUIPMENT ENGINEERS, INC., 737 LOMA VERDE AVE., PALO ALTO, CALIF. announces a new sand removal system claimed to perform better at less cost than other devices available for well water use. It reduces pump wear, eliminates meter damage due to sand and reduces customer complaints. Write the company for details.

Concrete Saws

335 There's an Eveready concrete and masonry saw to fit every need for patching, trenching, cutting of control joints faster and more efficiently. For product literature, write EVEREADY BRIKSAW CO., 1104 UNION AVE., KANSAS CITY 1, MO.

Factory-Built Sewage Treatment Plant

336 In this comprehensive booklet, SMITH & LOVELESS, INC., P. O. BOX 8884, KANSAS CITY 15, MO., gives engineering data, installation instructions, thorough description and applications of its "Oxigest" factory-built sewage treatment plants.

New Pressure Water Pipe

337 Technical *Bulletin* 100 covering Federal Specification INT. FS-SS-P-00385, describes the new cement mortar lined, reinforced cement mortar coated steel pipe Steelcor Cemcote. It also contains pertinent charts and data. Write SOUTHERN PIPE, DIV. OF U. S. INDUSTRIES, INC., P.O. BOX C, AZUSA, CALIF., for your copy.

Sturdy Trucks

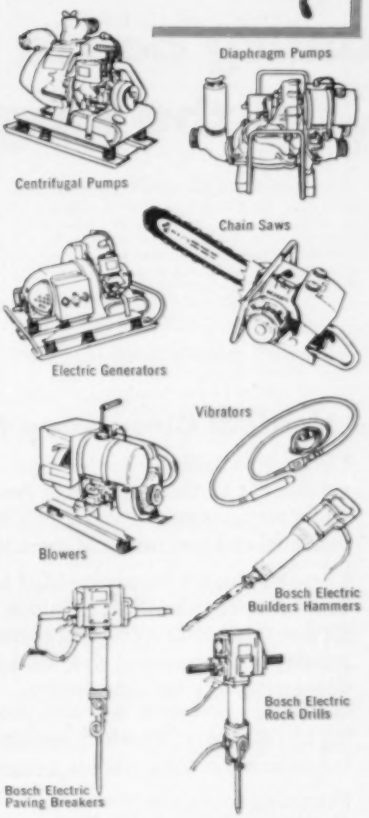
338 If you need any municipal trucks you will want to get information on Chevrolets Sturdi-Bilt Thriftmaster 6 trucks that are said to be built to outlast and outsave others. Write CHEVROLET DIV., GENERAL MOTORS, DETROIT 2, MICH. for details.

Tractor-Matched Attachments Give Job Versatility

339 . . . when you use engineered equipment offered by the TRACTOR AND IMPLEMENT DIV., FORD MOTOR COMPANY, BIRMINGHAM, MICH. Ford offers many tractor-loader, tractor-backhoe combinations plus a variety of power series, models and fuel options and many attachments to save time, men, and money. Write for details.

(See page 67 for more Bulletins)

HOMELITE Factory Branches throughout the country sell and service Homelite's complete line of carryable construction equipment.



HOMELITE FACTORY BRANCHES

EAST: CONNECTICUT: Greenwich, Hartford • NEW JERSEY: North Arlington, Woodbridge • NEW YORK: Albany (Latham), Buffalo, New York (North Arlington, N. J.), Rochester, Syracuse • MAINE: Orono • MARYLAND: Baltimore • MASSACHUSETTS: Boston (Allston) • PENNSYLVANIA: Altoona, Erie, Harrisburg, Hazleton, Philadelphia, Pittsburgh, Malvern • VIRGINIA: Arlington, Richmond, Roanoke • WEST VIRGINIA: Charleston, Clarksburg

SOUTH: GEORGIA: Atlanta • FLORIDA: Jacksonville, Miami • LOUISIANA: New Orleans (Metairie), Shreveport (Bossier City) • NORTH CAROLINA: Charlotte, Raleigh • OKLAHOMA: Oklahoma City • TENNESSEE: Knoxville, Memphis • TEXAS: Dallas, Lufkin

MID-WEST: ILLINOIS: Chicago (Stone Park) • INDIANA: Indianapolis • MICHIGAN: Detroit, Grand Rapids • MINNESOTA: St. Paul • MISSOURI: Kansas City, St. Louis • NEBRASKA: Omaha • OHIO: Cincinnati, Cleveland, Toledo • WISCONSIN: Milwaukee

WEST: CALIFORNIA: Fresno, Los Angeles (Alhambra), Sacramento, San Francisco • COLORADO: Denver • OREGON: Portland • UTAH: Salt Lake City • WASHINGTON: Seattle, Spokane

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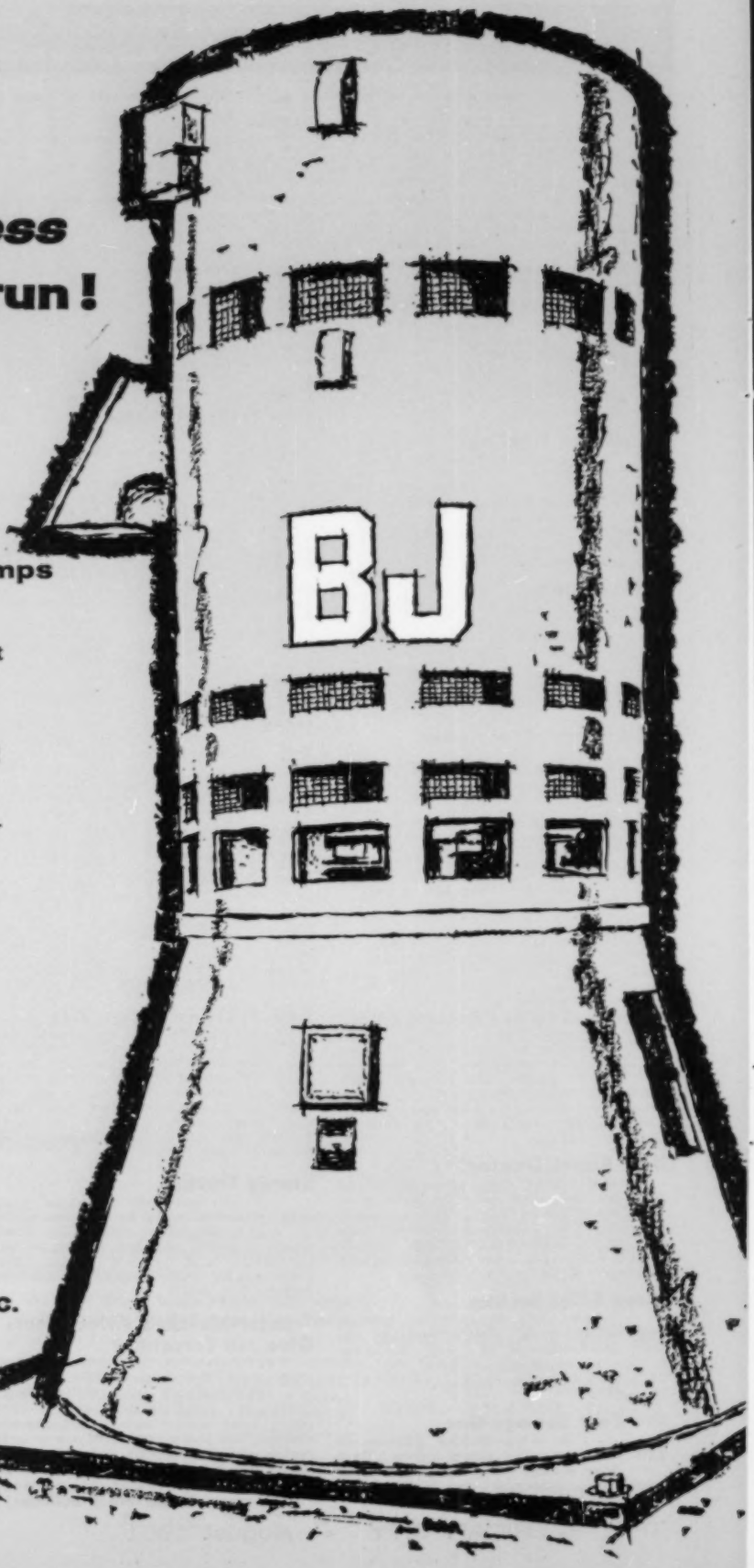
Quality *costs less* in the long run!



BJ Vertical Circulating Pumps

Designed to deliver water in large volume, BJ Vertical Circulating Pumps are in use on some of the Nation's largest industrial and governmental projects.

These BJ Quality Pumps are ideal for cooling tower circulation, irrigation service, flood control projects, municipal primary water pumping, river intake, dewatering for large construction, condenser circulation, industrial processing and other big jobs which demand the economy of long, reliable service.

Operating continuously with high efficiency, BJ Circulating Pumps are self-priming and require only a simple installation. Available in capacities to 50,000 GPM *in standard models,* and beyond on special order!

Atlantic City Electric Co.

of Gibbstown, New Jersey, has installed two BJ Vertical Circulating Pumps in their Greenwich Station. Rated at 20,000 and 10,000 gpm, both pumps have a head of 160 feet.

BYRON JACKSON PUMPS, INC.

Subsidiary of Borg-Warner Corporation

P.O. Box 2017-A, Terminal Annex, Los Angeles 54, California

BW

Here is Your Opportunity to Improve Conditions in Your City

These free catalogs will supply many new ideas for municipal money saving.

Write to address given or circle corresponding number on free post card on page 53.

Cuts Roots, Cleans Sewers

340 An expanding sewer cleaning unit adjusts in 30 seconds to fit sewer from 8 to 30 inches, cleans entire sewer wall, restores sewer lines to practically 100% clean condition. Catalog gives details. Write EXPANDING SEWER MACHINE CO., 108 E. WALNUT ST., NAPPANEE, IND.

Air-Cooled Engines

341 Gatefold folder gives specifications on short-stroke, 4-cycle, air-cooled engines with full-rated power in a wide range of sizes. Applications include use for garden tractors, pumps, sprayers, snow removal equipment, golf carts, concrete mixers. Write KOHLER CO., KOHLER, WIS.

Small Power Roller

342 ROWCO MFG. CO. INC., KEENE, N. H., reports that its Rollking power roller puts 440 pounds of rolling power at the operator's fingertips. Equipped with recoil starter, it's ideal for park departments, golf courses and tennis courts. Rolls on inclines, in confined areas, etc.

Grinds, Shreds, Loads

343 Versatile park maintenance unit takes stalks, prunings, bones, phosphate rocks for composting. It shreds, grinds, screens, or mixes soil, compost, peat moss, hard manure. For descriptive literature on the W-W Model 4-EV, write W-W GRINDER CORP., 2957-P, NO. MARKET, WICHITA 19, KANS.

Multipurpose Street Cleaner

344 *Bulletin* V-1 reports the facts on Vac-All, which functions both as catch basin cleaner and vacuum street cleaner, picking up debris, hauling it in fully enclosed body and disposing of it by means of hydraulic dump body hoist. Write CENTRAL ENGINEERING CO., INC., 4429 W. STATE ST., MILWAUKEE 8, WIS.

Large-Capacity Asphalt Tank

345 Model L-20 is a complete 25 to 30-ton hot mix per hour asphalt plant that can handle all city maintenance and repair work plus moderate paving and resurfacing. It's also a 1000-pound batch plant. For details, write WHITE MFG. CO., 1235 W. BEARDSLEY AVE., ELKHART 25, IND.

Vibratory Tamper

346 Dynapac CM-10, a new compact vibratory tamper for municipal use, travels at speeds up to 90 fpm, climbs grades, has an impact of 3600 pounds at 4500 vpm and adjustable frequency up to 4500 vpm. For descrintive literature, write VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J.

Blueprint Drawing File

347 New, open-type steel cabinet files engineering drawings, blueprints and maps, comes complete with 22 2-foot-long binders. Cabinet accommodates prints up to 24" x 36"; binders hold from 1 to 75 prints (1650 total). Write DANCER STIKFILE CO., P. O. BOX 10221, HOUSTON 18, TEX.

Just Walk It Along

348 Numerous municipal departments should find frequent use for this direct reading Model D Shalda measure meter, a precision counter that clocks up to 10,000 feet in feet and inches. For descriptive literature, write B. G. REILLY CO., P. O. BOX 231, N. SCITUATE, R. I.

Refuse Burner

349 Do you know about Burn-O-Matic? It burns combustible trash and refuse and is big in capacity, small in cost. Eleven sizes available, all with air pollution control equipment. For information, write BURN-O-MATIC DIVISION, INDUSTRIAL BLOW PIPE CO., P. O. BOX 5182, MEMPHIS 12, TENN.

Got to Clean a Sewer?

350 Want to clean it quickly? Want to clean it right? Why not investigate the Turco line of sewer-cleaning equipment, brushes, buckets, ferrets, flushing bags and rods? Request catalog from TURBINE SEWER MACHINE CO., DIVISION OF CHAS. H. STEHLING CO., 1303 N. FOURTH ST., MILWAUKEE 12, WIS.

Magnetic Flowmeters

351 *Catalog* 10D1416 describes the principle and advantages of magnetic flowmetering, gives facts on a simple, rugged instrument, available in several sizes, that can handle flows from a trickle to a torrent. Especially suitable for sewage and waste sludges. Write FISCHER & PORTER CO., WARMINSTER, PA.

Washing $ Down the Drain?

352 GOJER, INC., BOX 991, AKRON 9, OHIO, manufacturer of Go-Jo Creme Hand Cleaner, which gets the grimiest hands spotlessly clean and at the same time protects them against dermatitis, announces a "Stop Waste Program" that can cut up to 75% from hand-cleaning expenditures.

Packaged Pump Station

353 Growing communities needing or anticipating the need for increased sewage pumping capacities, will be interested in the new TEX-Quad rectangular-shaped packaged pumping stations. *Bulletin* TQ-61 provides pertinent information; write TEX-VIT MFG. CO., P. O. BOX 117, MINERAL WELLS, TEXAS.

Tax Equalization Appraisals

354 Cole-Layer-Trumble offers a quarter-century of experience in producing high quality appraisals for tax equalization purposes. Descrintive brochure available; write COLE-LAYER-TRUMBLE CO., 11 W. MONUMENT AVE., DAYTON 2, OHIO.

Vacuums in Debris

355 Giant-Vac is a powerful, rugged unit that develops velocities up to 200 mph. It sucks debris into a dust-control bag; optional equipment converts it to blowing machine or loader. Several models available. For applications and literature, write GIANT-VAC MFG. CO., S. WILLINGTON, CONN.

Hammer-Knife Mowers

356 The new 32-inch Mott Hammer-Knife is a combination reel and rotary unit and is available in tractor-powered front, self-powered front, and self-powered trailer models. It can be used for smooth lawns, man-size weeds, or mulch leaves. Write MOTT CORP., 500 SHAWMUT AVE., P. O. BOX 278, LA GRANGE, ILL.

Manhole Ladder Steps

357 "Wrought Iron for Sewage Plants and Manhole Ladder Steps" tells what 4-D wrought iron is, illustrates typical designs for manhole ladder steps, describes installations, points out advantages of galvanizing steps. Write A. M. BYERS CO., ENGINEERING SERVICE DEPT., CLARK BLDG., PITTSBURGH 22, PA.

Fly and Mosquito Control

358 . . . is given an effective boost by the new FST-1, which features a 100-gallon tank, high-pressure piston-type pump, 360° turntable rotation, and handles dust and granulas. Literature from BUFFALO TURBINE AGRICULTURAL EQUIPMENT CO., INC., 69 INDUSTRIAL ST., GOWANDA, N. Y.

Swimming Pool Chlorinator

359 An improved, compact swimming pool chlorinator, the Advance 100 series, feeds up to 50 pounds per 24 hours in three ranges applicable for swimming pool installations. For detailed literature, write CAPITAL CONTROLS CO., INC., DEPT. S-5, JONES AVE., WEST POINT, PA.

Polypropylene Broom Filler

360 Here's a broom filler that's proven its ruggedness and ability to keep streets cleaner, reduce wear, cut costs. It's Wynene 18, a product of THE NATIONAL PLASTIC PRODUCTS CO. For full details, write FREDERICK H. CONE & CO., INC., 181 FRONT ST., NEW YORK 38, N. Y.

Golf Course Sprinklers

361 *Catalog* No. TB-761 presents several sprinklers specially designed for watering golf courses. Includes one with lower angle trajectory for more coverage under windy conditions; also a greens sprinkler. Write RAINY SPRINKLER SALES, 609 W. LAKE ST., PEORIA, ILL.

Buckets, Grabs and Grapples

362 A new 50-page book on clamshell buckets, grabs and grapples includes data on how to choose the proper clamshell bucket and tables showing the relationship of Erie buckets to weights and materials and sizes of cranes. For *Bulletin* No. 2L-60, write ERIE STRAYER CO., RUDOLPH AVE., ERIE, PA.

Grounds Maintenance Tools

363 Updated literature now being offered by GRAVELY CLEAN-CUT MOWERS, DUNBAR, W. VA., includes facts on Gravely tractors and attachments and a matched set of riding rotary mowers and self-propelled trimming mower, which simplify grounds maintenance the year 'round.

Rubber and Plastic Traffic Guide

364 If you've got to guide or channel traffic, or need an emergency barricade, you'll find these rubber and plastic Safe-T-Cones helpful and effective. Four-page folder gives details; write RADIATOR SPECIALTY CO., CHARLOTTE, N. C., for a copy.

Protects Pipelines

365 In this 28-page illustrated catalog you'll find valves of just about every description for water and sewage line protection. It's available from MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA.

Controls for 20% More Traffic—25% Less Congestion

366 . . . Minneapolis reports show that with the EAGLE SIGNAL COMPANY'S master controllers it realized this increase along a one mile stretch of one of its heaviest traveled areas. Write the company at Moline, Ill. and find out how your city can realize similar results.

(See page 68 for more Bulletins)

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Cathodic Protection Booklet

367 How cathodic protection works to extend the life of ferrous metals, and where it can be used to reduce operating and maintenance cost is the subject of a booklet available free from THE HARCO CORP., 4600 E. 71ST ST., CLEVELAND 25, OHIO.

Engines Use Sewage Gas

368 WHITE DIESEL ENGINE DIVISION, SPRINGFIELD, OHIO maker of engines to cover every municipal power requirements will show you how to save expenses by using a White gas engine which will operate on sewage gas produced in your treatment plant digesters. Write for details.

Economical Refuse Collection

369 . . . is promised by GAR WOOD INDUSTRIES, WAYNE, MICH., with its Load-Packer 600 which has lowest loading height, fast packing cycle, large capacity and low maintenance. It is the choice of many large cities.

An Asphalt Patcher

370 . . . that will boost your street maintenance standards while lowering costs is described in literature from Essick Mfg. Co. For a complete patching job you need a truck, two men and Essick road maintenance equipment. For details, write ESSICK MFG. CO., 1950 SANTA FE AVE., LOS ANGELES 21, CALIF.

Small Unit Aeration Equipment

371 Learn how to provide low-cost odor and nuisance-free unit sewage purification for 20 to 5,000 people. *Bulletin* 136-A gives the full story. Write CHICAGO PUMP, HYDRODYNAMICS DIV., FOOD MACHINERY AND CHEMICAL CORP., 622 N. DIVERSEY PKWY., CHICAGO 14, ILL.

Modern Traffic Control

372 The AUTOMATIC SIGNAL DIV., EASTERN INDUSTRIES, NORWALK, CONN., is prepared to show you how to get maximum production, service, and safety on your freeways with electromatic freeway automation. Send for Electro-Matic Freeway Automation *Brochure* No. F-101.

Traffic Paint

373 A tough, alkyd base traffic paint that can be used for street, industrial and airport pavement marking, dries quickly, wears well, and can be applied to concrete, asphalt, macadam and brick surfaces. For details, write ZEP MFG. CORP., 1310 SEABOARD INDUSTRIAL BLVD., N. W., ATLANTA, GA.

For Municipal Maintenance Jobs

374 Catalog on Gradall M-2460 gives specifications, construction and design features and applications of this "jack of all trades" and its more than 22 fast-change attachments. For copy, write THE WARNER & SWASEY CO., CONSTRUCTION EQUIPMENT DIV., CLEVELAND 3, OHIO.

New Centrifugal Pumps Bulletin

375 . . . No. 61AGC-P describing a complete line of Rex A.G.C. self-priming centrifugal pumps is available from CHAIN BELT CO., CONSTRUCTION MACHINERY SEC., MILWAUKEE 1, WIS. These pumps feature quick and easy maintenance, new-pump efficiency for the life of the pump and a cartridge that enables fast replacement in the field.

Prevent Fire Tragedies

376 You can prevent many tragedies by installing a direct-to-fire department fire alarm system. THE GAMEWELL CO., 1243 CHESTNUT ST., NEWTON UPPER FALLS 64, MASS., makers of fire alarm systems and emergency signaling devices offers such protection. Write for details.

Police, Fire Uniform Fabrics

377 FRANKLIN WORSTED CO., 40 E. 34TH ST., NEW YORK 16, N. Y., is a specialist noted for its range of police and fire uniform fabrics made in all weights. To obtain cloth samples and specifications, write to DAVID E. SINGER, SALES AGENT. Ask, also, for free copies of articles which provide authoritative information on how to purchase uniforms.

Municipal Incineration

378 You can get specific engineering information on Amer-O-Matic continuous feed, automatic incinerators, as well as assistance in solving waste disposal problems from engineers and specialists in incinerator design. Write AMERICAN INCINERATOR CORP., 5710 E. NEVADA, DETROIT 34, MICH.

Provide Ice-Skating For Your Municipality

379 . . . and a new booklet available from the Committee of Steel Pipe Producers, AMERICAN IRON & STEEL INSTITUTE, 150 E. 42ND ST., NEW YORK 17, N. Y., will tell you how with durable, economical steel pipe. Write for your copy.

Dependable Engines For Municipal Use

380 A full line of industrial engines and power units of overhead-valve design are geared to meet municipal power requirements. Literature from FORD INDUSTRIAL ENGINE DIVISION, FORD MOTOR CO., P. O. BOX 598, DEARBORN, MICH., reports that these compact engines deliver more horsepower per pound of engine weight than ever before possible.

Traffic Signal Equipment

381 City, county and state officials who work with traffic control equipment will want complete-line literature on the traffic signals and traffic signal controls now available from TRAFFIC SIGNALS, INC., P. O. BOX 1303, 222 BEECH ST., SHREVEPORT, LA.

Improved Fire Hose

382 A new Eureka hose never requires drying out, can be repacked on a fire truck when still wet, takes up 30% less space, is tougher, lighter and more flexible, provides a higher pressure capacity. Write UNITED STATES RUBBER, 1230 AVENUE OF THE AMERICAS, NEW YORK 20, N. Y.

Steel Lighting Standards

383 Interested in tubular steel standards for street lighting, flood-lighting or traffic signals? Why not ask THE ELRECO CORP., 2000 CENTRAL AVE., CINCINNATI 14, OHIO, for a copy of its full-line catalog?

Portable Melting Furnaces

384 These compound-type melters give fast, smooth, controlled melting and heating of joint compounds for sewer and water lines, protective coating enamels, asphalt, pitch and tar. Write for *Sheet* No. GB108LA, Index Area UB-1, to HAUCK MFG. CO., 124-136 TENTH ST., BROOKLYN 15, N. Y.

New Plug Valve

385 The GENERAL PRODUCTS DIV., HAYS MANUFACTURING CO., ERIE, PA., announces the development of a completely new plug valve for water, oil, gas and air service called NUSEAL. It is non-freezing and non-galling and offers bubble tight shut off and leak proof service because it is self-adjusting and automatically compensates for wear.

Snow Plow Catalog

386 Whether you plow airports or parking lots, city streets or expressways, you'll find there's a Frink plow to meet your needs. Catalog details one-way, reversible, roll over, and V-type plows. For copy, write FRINK SNO-PLOWS, INC., CLAYTON, 1000 ISLANDS, N. Y.

Non-Fogging Water Meter

387 Because the new Badger magnetic drive meter is hermetically sealed against dirt, dust, water and vapor it will neither fog nor cloud and remains easy to read. It is available in split-case or frostproof models. Write for full details to BADGER METER MFG. CO., 4545 W. BROWN DEER RD., MILWAUKEE 23, WIS.

Concrete Handling Equipment

388 Catalog sheets on an extensive and complete line of concrete handling equipment for street and highway construction are available from ENGINEERED EQUIPMENT, INC., WATERLOO, IA. Products include concrete cutters, power hammers and breakers, masonry saws, etc.

Hot Mix Asphalt Plant

389 The Black-Topper, a fully portable batch-type hot mix asphalt plant built from "big plant" components and design can be erected or dismantled in less than an hour. For details on the many advantages it offers write to CUTLER ENGINEERING CO., 5435 W. 63RD ST., CHICAGO 38, ILL.

New Floodlight Bulletin

390 . . . 2727 is now available from CROUSE-HINDS CO., SYRACUSE 1, N. Y., describing a new sealed-beam lamp floodlight series called the "PAR-beam" designed for the economical illumination of parking lots, buildings, rescue equipment and fire trucks. Write for your copy.

Water Meter Settings

391 THE FORD METER BOX CO., INC., WABASH, IND., knows the value of good care and maintenance of water meters. That's why it has prepared the booklet "Setting and Testing Equipment for Water Meters." Interested water utility men can obtain a copy by writing to the company.

Street Sweeper Brooms

392 Refilling material is immediately available from FLO-PAC FIBRES INC., 1501 4TH AVE., S. MINNEAPOLIS 4, MINN., including flat steel wire, palmyra stalks, African bass, split hickory, DuPont "Tynex" nylon and polypropylene fibre. Free samples on request.

Fast, Sound Street Sealing

393 "How to Solve Road Surfacing Problems Quickly and Economically" is the title of a new brochure featuring the Spread-Master which gives from 25 to 100% greater production and describes its step-by-step method of seal coating. Get your copy from FLAHERTY MFG., INC., POCATELLO, IDAHO.

Stores Digester Gas

394 Cities are finding new uses for gas produced in sewage digesters both for power and heat. The Hortonsphere stores digester gas to provide a continuous supply when production is low. CHICAGO BRIDGE & IRON CO., 322 S. MICHIGAN AVE., CHICAGO 4, ILL. will be glad to tell you about it.

Booklet on Electrical Conduit

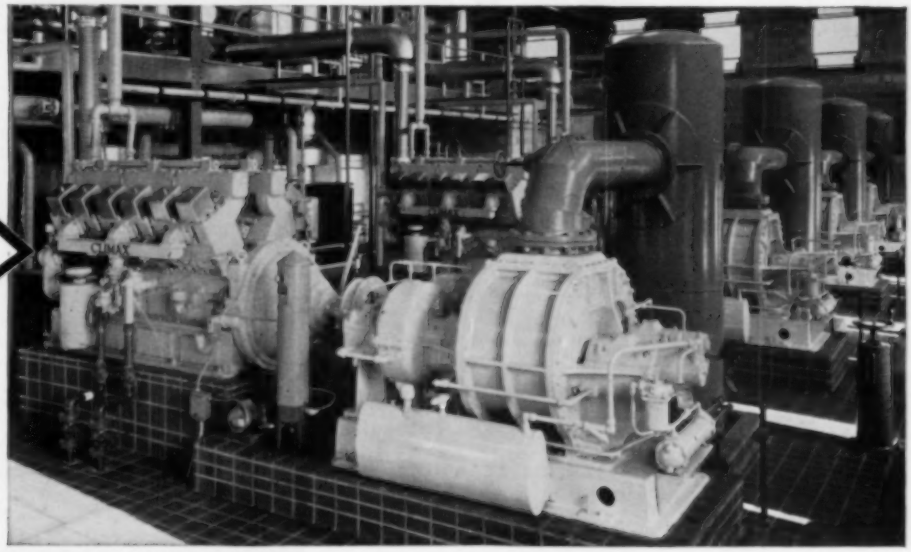
395 Transite conduit Type I, for installation in concrete and Type II, a thicker-walled conduit are described in *Brochure* TR 247A available from JOHNS-MANVILLE, PIPE DIV., 22 E. 40TH ST., NEW YORK 16, N. Y. It contains data, conduit requirements, performance factors, plus advantages of Transite in underground as well as exposed installations.

(See page 72 for more Bulletins)

in this Mansfield, Ohio $4 Million sewage plant...

A SLUDGE GAS CLIMAX POWERS EACH 5250 cfm BLOWER

Four CLIMAX V-125 Engines



Mansfield, Ohio, puts money back in the taxpayer's pocket with Climax Power *economy*. In its recently completed sewage treatment plant, digester gas fuels the four Climax Engines driving the blowers. Used for aeration, grease and grit removal, are four 18 x 21 RCDH Roots-Connersville blowers. Capacity of each blower is 5250 cfm. And each has a V-125, 12-cyl., 7½ x 7-in., 3711 cu. in. displ. Climax Engine operating on sludge gas at 650 rpm and delivering 225 hp. • Engineering Controls, Inc., St. Louis, Mo., supplied the vapor phase cooling system. Floyd D. Browne & Associates, Marion, Ohio, are the Consulting Engineers. • *Send for bulletins* on Climax sewage plant engines: 12, 8, 6 cyl.; sludge gas, or natural gas, butane, gasoline, or any combination fuel; 100 hp to over 600 hp. CL-120

CLIMAX ENGINE MANUFACTURING CO. • DIVISION OF WAUKESHA MOTOR COMPANY
FACTORY—CLINTON, IOWA

WHAT WILL YOU INSIST ON IN YOUR NEXT LOADER?

- ☐ machine availability
- ☐ low, long-term cost
- ☐ high productive capacity
- ☐ simple, easy operation
- ☐ fast, easy servicing
- ☐ high trade-in value
- ☐ reliable dealer service

This 1¾ cubic yard 955H, owned by Polk County, Georgia, can load a 5 yard truck in less than 60 seconds. It could easily truck-load 2200 tons in an 8-hour shift. District Foreman John Davis says the 100 HP 955 is the best rig that he's ever had anything to do with. "And I've been in the business for years," he says. "The 955 loads easily and has plenty of power. We do a lot of digging with it." Like its brothers, the 977 and 933, the 955 has lifetime-lubricated rollers, a rugged undercarriage and a dependable Cat-built diesel engine.

This 2½ cubic yard 977H, owned by Anderson County, South Carolina, is being used to build $1,500,000 of new roads, replacing those closed by the Hartwell Dam in the Barkas Creek section. "Power shift really pays off for us," says John Ashley, County Supervisor, "because we generally don't have a crew with a lot of equipment experience. Our new men get good production out of the 977 in only a few days. We've found out that it's an easy machine to keep in good operating condition, too. That helps stretch our budget."

IF YOU'VE CHECKED 3 OR MORE ESSENTIALS...YOUR BEST BUY IS A CAT LOADER

Matter of fact, if you've checked only one a Cat loader is the answer. Low, long-term cost—so important when you're investing public funds—is an established Caterpillar fact, a record earned by years of low-cost, high-production performance on city, county and private contract jobs. It's a record based on thousands of individual machine cost sheets and detailed performance reports.

On jump-and-run jobs or on 2000-4000 tons/day quarry or excavation assignments, Cat loaders are ready to put in a full shift every day.

There are 3 rugged Traxcavator track-type loaders: the big 2½ yard 977H, the 1¾ yard 955H and the 1⅛ yard 933. The high-production 977 and 955 are equipped with Caterpillar power shift transmissions for instant changes of speed and direction at the easy flick of a lever. Add this to Caterpillar's automatic bucket controls, live-action hydraulics and increased horsepower and you've got the smoothest, fastest-working loaders available.

Functional design and unitized construction make Traxcavator Loaders easy to service; they bounce back on the job quickly . . . and years from now, when you're ready to trade-up to a new model, they'll bring a premium trade-in price.

If you haven't checked that last box ☐ *reliable dealer service*, think about it again. No matter how expert your repair crews are, no matter how reliable your equipment, the services of an alert, responsible dealer are invaluable. Look over your Cat Dealer's facilities. His parts inventories and service bays could save your taxpayers' money.

Insist on getting what you *need* in your next loader—and to be sure, see your Caterpillar Dealer.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

CAT LOADERS STRETCH TAX DOLLARS

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

Small, Low Cost Sewage Treatment

396 For economical B.O.D. removal by a "total oxidation" sewage plant for small residential areas or institutions you will want to get all the facts about the Accelo-Biox plant which requires a minimum of supervision and expense while producing a consistently high quality effluent. For details, write INFILCO INC., TUCSON, ARIZ.

Control-Time Your Most Valuable Asset

397 The LATHEM TIME RECORDER CO., 92 THIRD ST., N. W., ATLANTA, GA., will be glad to send you details about its time recorders for payrolls, parking lots, garages, watchmen's rounds, or wherever a time record is essential.

Instruments and Controls for Water and Sewage Works

398 A new 4-page bulletin describing the complete line of instruments and controls available from BAILEY METER CO., 1050 IVANHOE RD., CLEVELAND 10, OHIO is yours for the asking. It includes meters, transmitters, recorders, temperature instruments, plug-in components, detector and analysis instruments, analog and digital systems. Write for *Bulletin* (G14-1).

clean sewers with 25HP HEAVY DUTY FLEXIBLE TRUCK-LODER AND LOAD 5 TO 6 TRUCKS PER DAY!

PATENT NO. RE 24,908

Sewer to Truck NON-STOP—no complicated auxiliary dumping devices

For the big job, in sewers 24" and up, the Heavy Duty Model Truck-Loder gets the job done FAST by using a 5.4 cu. ft. bucket. Special wide flange rollers to handle the big bucket; heavy duty framing; and the 25 h.p. Wisconsin air cooled engine, make short work of a tough job. Many cities report removing 5 to 6 truck loads of sewer muck in one day.

Like regular Flexible Truck-Loders, the Heavy Duty Model has the streamlined direct truck loading features that other complicated auxiliary devices have never been able to equal. The operator is able to remotely control, shake and thoroughly empty the bucket over the truck. Optional features include the Instant Dual Speed Transmission and a Cable Footage Meter.

Before you buy, check with Flexible—originator and leading manufacturer of truck-loaders. Wide choice of models. Write for details.

FLEXIBLE, INC.

415 South Zangs Blvd., Dallas, Texas

3786 Durango Ave., Los Angeles 34, Calif. • 1005 Spencerville Road, Lima, Ohio

Mows Lawns Fast, Clean

399 The Turf-King 76 is designed to mow more area faster, smoother, leaving a finer looking lawn. Literature gives details, points out construction features of this 3-reel power-driven unit. Write JACOBSEN MFG. CO., DEPT. MI61, RACINE, WIS.

New Dry Fire Extinguisher

400 A new dry chemical extinguishing agent, effective on Class A, B and C fires has been introduced by ANSUL CHEMICAL CO., MARINETTE, WIS. Known as "FORAY," this new multi-purpose chemical adds the versatility of ABC effectiveness without a large investment for new extinguishers.

For Asphalt Patching, Paving

401 Hot Witch roller delivers compaction equal to 5 tons dead weight. It packs, seals and bonds either hot or cold mix to old paving, or can be used for small new paving jobs. For full facts, write THE CHARLES MACHINE WORKS, INC., 1959 WEST FIR, PERRY, OKLA.

Self-Supporting Parking Meters

402 These parking meters incorporate construction and mechanical features that assure low maintenance and maximum revenue. They're available on a "pay as you go" finance plan. To learn more about them, write MARTIN RED BALL PARKING METERS, BENTON, ILL.

Power Equipment

403 Newest catalog from MALONEY ELECTRIC CO., ST. LOUIS 20, MO., gives full description of such products as power transformers, unit substations, feeder voltage regulators, constant current street lighting transformers, magnetic components for electronics, etc.

Film on Small Sewage Plant

404 "BIO-PAC—Big City Sewage Processing For Small Capacity Needs" is the title of a film which shows how a compact plant gives big city sewage processing to areas of 50 to 500 people. It is available for free showing by writing to LINK BELT CO., DEPT. PR, PRUDENTIAL PLAZA, CHICAGO 1, ILL.

Catch Basin Emptier

405 Clogged sewers, catch basins, and manholes, as well as sewerage filtration beds and sludge pit purifiers, are cleaned in a jiffy when this unit goes to work. For complete data, write CITY TANK CORP., CULPEPPER, VA.

Water Treatment Equipment

406 *Bulletin* No. 9042 gives full facts on the Dorrco PeriFilter System, which provides both a pre-treatment unit and an annular sand filter in one tank. Finished water is continuously produced even during backwashing. Write DORR-OLIVER INC., STAMFORD, CONN.

Batteries For Municipalities

407 Dependable, long-life batteries for fire alarm and police telegraph systems, harbor and river patrol vessels and emergency lighting systems are subjects about which EXIDE INDUSTRIAL DIVISION, THE ELECTRIC STORAGE BATTERY CO., PHILADELPHIA 20, PA., knows a great deal. Why not request complete information?

Waste, Trash Receptacles

408 Waste baskets, utility receptacles, smoker's urns, self-closing waste receptacles and refuse cans, contractor pails, all service containers are included in the current catalog offered by THE F. H. LAWSON CO., CINCINNATI 4, OHIO. Copy available on request.

New Portable Engine-Generator

409 . . . to provide power to operate all types of tools, lights and appliances in sizes of 1000, 2000, 3000 and 4000 watts ac at 3600 rpm is being offered by the KATOLIGHT CORP., BOX 891, MANKATO, MINN. It is lightweight and features a pull starter, protective carrying frame, rubber mounts and other features.

Here's why you get Better Trees and Nursery Stock from COLE NURSERY CO.

IDEAL soil and climate conditions, careful preparation and proper irrigation contribute to the quality of Cole plants. Highly-mechanized systems of planting, cultivating and root pruning produce strong, healthy plants, with more compact root systems, at lower cost. Mechanical digging methods and careful packing assure delivery of Cole nursery stock in good condition with uninjured roots.

Since 1881 Cole Nursery Company has concentrated on developing and producing only the better varieties and highest quality trees, shrubs, evergreens, hedge plants and ground covers. The extensive experience of more than 75 years is applied at our 1200-acre properties at Painesville and Circleville, Ohio. These large-scale operations are among the most modern nurseries in the industry.

Literally millions of trees and plants, in more than 360 varieties, give you a dependable source of material to meet your needs in large quantity and wide variety. We will be glad to quote on your requirements.

Spectacular SUNBURST
(Plant Patent No. 1313)
The sensational, new two-color tree with brilliant yellow foliage on branch tips. It appears to burst with bloom all summer long.

These patented Cole Originals help solve your landscaping and maintenance problems

Although each variety is unique, these trees have all the best qualities of the Honeylocust. They transplant easily, require no staking, are exceptionally strong, hardy and relatively fast growing. Of many thousands grown, only a very few have exhibited small, embryo thorns which drop off or are absorbed by the growing tissue of the tree. They are widely adaptable to almost any soil or climate, readily withstand ice and storm damage, drought and poor drainage. They cause no ground-litter, require no fall clean-up or leaf removal. You'll never buy trees that cost you less for maintenance, damage or replacement.

Cole's New IMPERIAL
(Plant Patent No. 1605)
The graceful, spreading, new Honeylocust that grows strong and straight *without staking*. A favorite of landscape men and tree experts.

Cole's new SKYLINE
(Plant Patent No. 1619)
Distinctive, stately variety with strong trunk and shapely crown. *Needs no staking*. Dark green foliage has heavy, leathery texture.

Cole's New MAJESTIC
(Plant Patent No. 1534)
A clean, graceful, symmetrically-branched tree. Produces a straight, sturdy trunk and compact crown *without staking or special trimming*.

Cole's New TALLHEDGE
(Plant Patent No. 1388)
A thornless, glossy Columnar Buckthorn that grows to 12 feet. Ideal for tall, narrow, dense hedges or screens. Bears colorful berries.

LARGE QUANTITIES
360 VARIETIES
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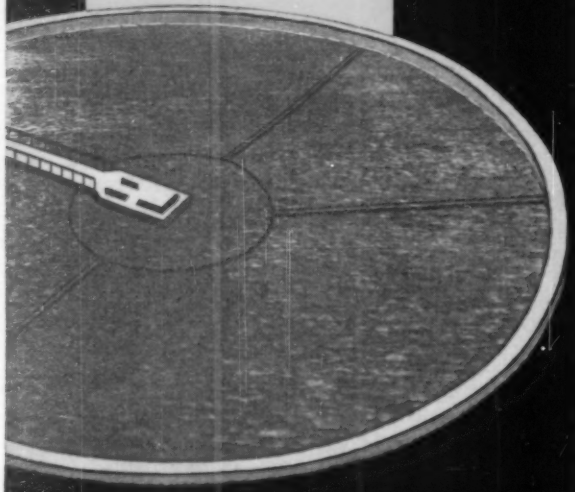
PAINESVILLE, OHIO

OHIO'S LARGEST
WHOLESALE NURSERY
ESTABLISHED 1881

Ferri-Floc
FERRIC SULFATE

Is Your Problem Iron and Manganese Removal?



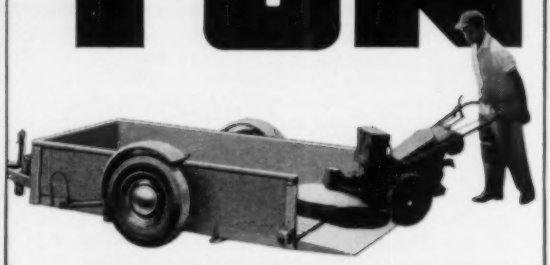
Solving your iron and manganese removal problem by coagulation in the high pH range is only one of the many reasons you will find Ferri-Floc a superior coagulant. Let one of our experienced technicians demonstrate Ferri-Floc in your plant.

Also basic producers of—
SODIUM SILICOFLUORIDE
COPPER SULFATE

Phone JAckson 3-5024 or write.

TENNESSEE CORPORATION
612-629 Grant Building, Atlanta 3, Georgia

ONE MAN LIFTS A TON



...OF GROUNDS CARE EQUIPMENT!

. . . *hauls, unloads, re-loads it, too* . . . with Trailevator, the amazing hydraulic elevating trailer that lowers to ground level for easy, one-man loading . . . *lifts its own load* in seconds! Parks, golf courses, colleges, cemeteries . . . if maintaining grounds is your responsibility, find out how you can get more jobs done in less time, *at less cost* . . . with Trailevator.

SEND TODAY FOR BULLETIN GC-100! *Trailevator Division, Magline Inc., P. O. Box 48, Pinconning, Michigan*

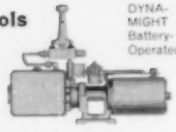
TRAILEVATOR
TAKES THE LIFT OUT OF LOADING

REMOVE SNOW
FASTER • EASIER
LESS COST

Monarch Power Hydraulic Controls

Get the jump on winter—get set now for faster snow removal with Monarch Power Hydraulic controls!

With Monarch, lift and lower your snow plow right from the cab . . . automatically. Instant up-and-down action with the flick of the wrist. A Monarch control is quickly installed. See your dealer or write for illustrated folder.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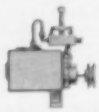
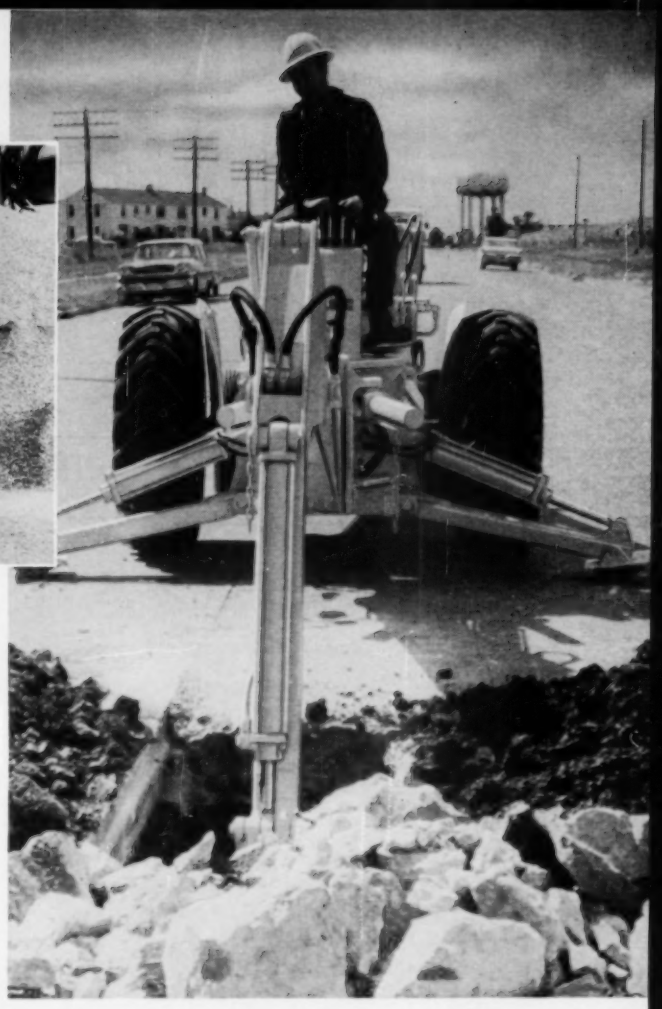

HY-LO-JACK HY-LO for Jeep Fan Belt Driven

MONARCH ROAD MACHINERY COMPANY
1331 Michigan St., N.E. Grand Rapids 3, Michigan, U.S.A.

Rugged Case-built backhoe cuts 14′ deep, reaches-out 16′9″ to dig, swings 180° with foot-pedal control for smooth, fast dig-and-dump. Regular buckets dig square holes 7′ long x 6⅔′ deep or 10½′ long x 9½′ deep. Bell-hole type also available among choice of 8 buckets.



Brawny Case 530 loader lifts 2000 lbs. to full height, dumps with over 9′ clearance for quick dump-and-go. Choice of 5 buckets including 1-cu. yd. snow bucket... interchangeable pallet fork, crane boom, rubbish fork, and log fork for multiple material handling.

How to work 2 places at once... to give faster service at low cost

DIGGING • LIFTING
HANDLE WITH CASE *Utility*
LOADING • CARRYING

One of the easiest ways to handle more jobs per day is to be sure you're not over-equipped for "run-of-the-mill" work. Large machines have a definite place on your equipment list. But why let costly large-capacity machines dominate the list?

Simple arithmetic shows that for small and medium-size tractor jobs, *you can own two Case 530 Utility machines at the cost of one larger outfit.* You can select, say, a 530 Backhoe-Loader *plus* a 530 Loader machine and work two projects at once, instead of one. You'll give faster service on "complaint" calls, speed new construction and keep maintenance on regular schedule at lower cost. And at the same time, you'll cut per-job expense for fuel, upkeep, repairs and insurance. There are savings in transportation costs, too, because you can drive the rigs from job to job instead of tying up a truck or trailer and additional manpower.

Yet, with all this economy, rugged Case 530 tractors give you *heavy-duty work-power and exceptional job versatility.* They provide tremendous dig-power for loader work with high-torque *gasoline or (optional) diesel engine*... extra traction with special 14.9-24 tires... reverse direction instantly with synchronized shuttle transmission... back up 24% faster than forward... turn sharply with power-steer... travel job-to-job up to 18 mph. Loader unit accommodates instant-operable center-mounted rotary mower, rear rotary and side cutter-bar mowers. Rear hitch operates all-purpose blade, scarifier-scraper and other attachments for year-round usefulness.

Call your Case Dealer today for free demonstration of a *pair* of versatile Case 530's. See how you can nearly double your work output on a wide range of everyday trenching-loading jobs... give faster and better service, even on a limited budget.

CASE *Utility*

J. I. CASE CO., Dept. H1561, RACINE, WIS.

☐ Send full details on Case 530 *Utility* Loader and Backhoe-Loader units. I am also interested in .....

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CU-BL

This mark tells you a product is made of modern, dependable Steel.

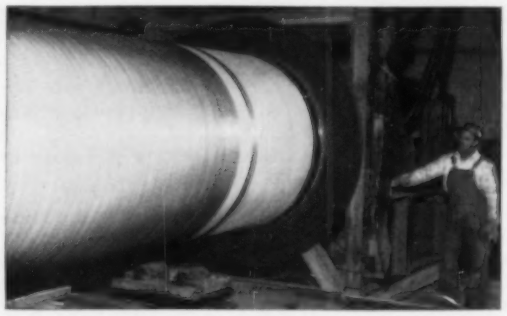
Prestressing with USS American High Tensile Grade Wire adds strength and durability to 11,000 ft. of 36″ concrete pressure pipe installed along Cincinnati main artery

Cincinnati's Montgomery Road is one of the busiest streets in town. It feeds main line traffic into Cincinnati from the Northeast. Recently the city faced the problem of extending a 36″ water line 11,000 ft. down Montgomery Road. The job had to be done fast. The road had to be kept open. The answer was Concrete Pressure Pipe prestressed with USS AMERICAN Bright-Drawn High Tensile Grade Wire. A special steel-and-rubber joint which is made quickly and easily sealed adjacent ends of the pipe.

According to contractor A. F. Jelen & Son Company, Cincinnati, the special joint allowed them to lay the pipe without a hitch, and the job was finished right on schedule. Furthermore, the joint remains bottle-tight under the heaviest traffic loads.

The prestressed steel-and-concrete pressure pipe for the Cincinnati job was manufactured by Price Brothers Company, Dayton, Ohio. It's made by forming a steel plate into a cylinder. The seam is welded and the pipe undergoes a high-pressure hydrostatic test to make certain the weld is tight. The inside of the cylinder is then covered with a layer of centrifugally cast concrete and the cylinder, with its concrete core, is wrapped with a helix of USS AMERICAN Bright-Drawn High Tensile Grade Wire made to ASTM specification A-227. After wrapping, the entire pipe is covered with mortar to protect the wire from corrosion. Tension in the wire places the concrete and steel cylindrical shell in compression. In service, the internal pressure caused by the liquid acts to overcome this pressure. Thousands of miles of this and other types of prestressed concrete pipe have been installed across the country.

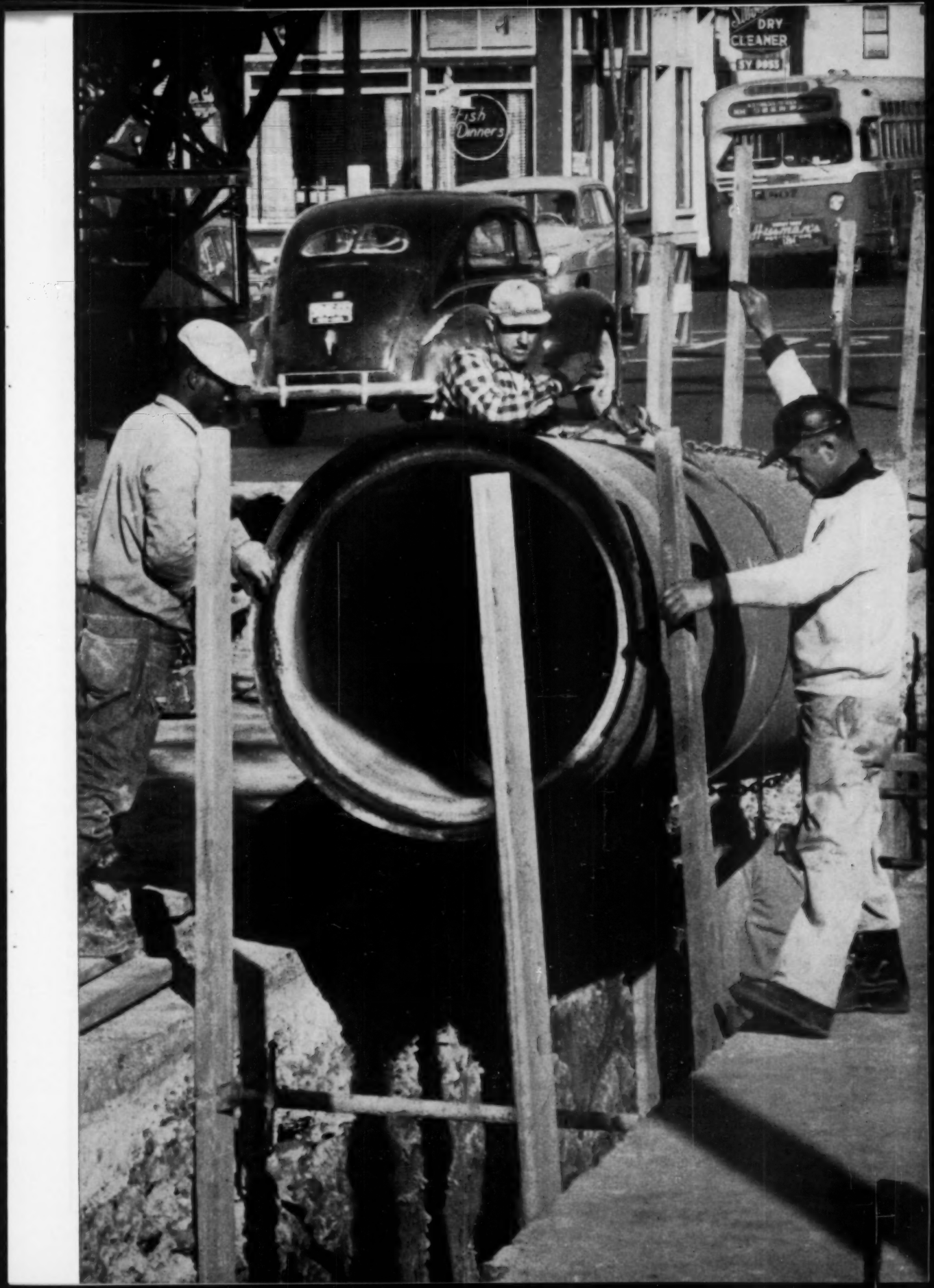
USS American Steel and Wire Division pioneered the making of high tensile strength steels for prestressed concrete construction. And we are constantly working with manufacturers to make sure they get the wire they need to keep the quality of their product high. Get the complete story in our free 56-page brochure: *USS American Wire and Strand for Prestressed Concrete*. Write today: American Steel and Wire, 614 Superior Ave., N.W., Cleveland 13, Ohio. USS and American are registered trademarks



Steel cylinder, with concrete core, wrapped with USS AMERICAN High Strength Wire. Wire is then covered with mortar coating.

American Steel and Wire Division of United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, New York, Distributors Abroad


DRY
CLEANER
Fish
Dinners

MIAMI BEACH KEEPS CLEAN WITH GAR WOOD LOAD-PACKERS

With several million visitors arriving each season, and with a reputation for beauty to be maintained, Miami Beach is especially demanding in its refuse collection requirements. Hotels, restaurants, and business establishments are serviced daily, apartment buildings every two days. The job must be done as fast and efficiently as possible.

To find the *best* machine for this job, the city tried and tested several competitive packers. The result: Miami Beach chose the Gar Wood Load-Packer exclusively, and now operates a fleet of 33 units.

Maximum payloads and low maintenance were the reasons behind the choice, city officials state. The Load-Packer has the biggest hopper of any 16-yard packing machine, carries the biggest payloads because dead weight has been cut to a minimum. And, since the Load-Packer packs faster than any competitive machine, each crew can work a longer route.

Today, municipalities and private collectors throughout the country are getting far more efficient refuse collection, and are making tremendous savings in time, money and manpower with Gar Wood Load-Packers—the most advanced refuse collecting machines ever manufactured.

Gar Wood Pax-All Containers Cut Costs On Commercial Routes

In addition to the fast packing speed of the Load-Packer 600 there is another feature that is speeding collection time for municipalities and private collectors on commercial routes: Gar Wood's Pax-All Container System.

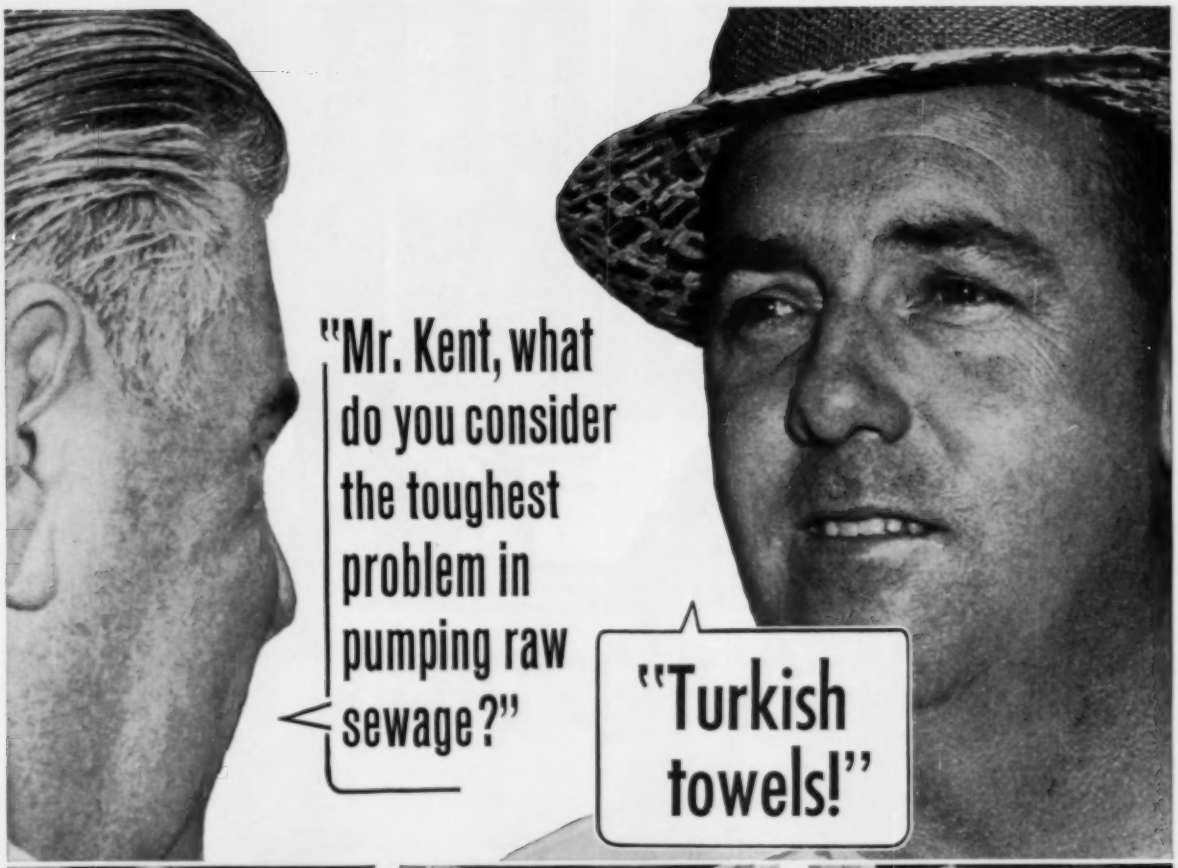
The completely hydraulic operation of this system is controlled with one lever. Pax-All containers snap quickly on and off without use of chains or cables. And the Pax-All system is actually *300% faster* than the cable method on other packing machines.

Increased speed in refuse collection means fewer man-hours, less maintenance, reduced costs. The Pax-All Container System is just one example of engineering developments that make the Gar Wood Load-Packer 600 the fastest and most economical packer in use today.

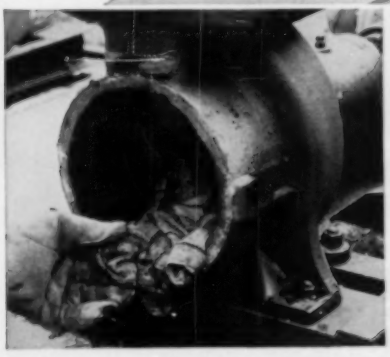
GAR WOOD INDUSTRIES, INC.

Wayne, Michigan

Richmond, California



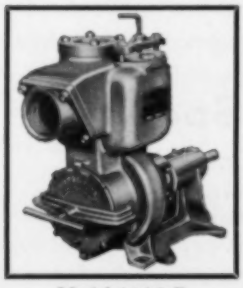
End Plate off



Towel out

End Plate on

"Towels can jam the works, but good!" says Cecil Kent, owner, Sanitation Service Company, Jacksonville, Florida, "I've had 'em clog conventional pumps so bad, it meant a shutdown from two hours to two days.



Model 14A2-B Sewage Pump

"That's why I've standardized on Gorman-Rupp sewage pumps. And what a difference! Fewer shutdowns . . . clogging cleared in just three to fifteen minutes! This cuts average maintenance costs from $120 to only $12 per pump per year. On my 21 Gorman-Rupp pump installations, that adds up to a whopping big saving. Over $2200 a year on parts, packing, materials, and labor.

"Sure, I had a problem—but *no more!*"

Thrifty, trouble-free, self-priming Gorman-Rupp sewage pumps —2″, 3″, 4″ or 6″ sizes—can be connected to your power or ordered complete with power units. Write for complete specifications.

THE GORMAN-RUPP COMPANY

305 Bowman Street **Mansfield, Ohio**

Gorman-Rupp of Canada Ltd., St. Thomas, Ontario

THE LEADER FOR OVER 30 YEARS

HERSEY
COMPOUND METER
MODEL CT (BRONZE CASE)

for Accurately Measuring Wide Range of Flows

This water meter is a unique combination of a Current Meter, to measure high rates of flow, and a Disc Meter, to measure low rates of flow. They are combined in a single bronze case with a mechanical compound lever type valve, for the purpose of accurately measuring a larger range of flows than can be measured by any single meter. Hersey compounds are ideally suited for apartment buildings, hotels, hospitals and schools. Sizes 2″, 3″, 4″, 6″ in single Bronze Case. 8″ and 10″ in Iron Cases with external bronze by-pass.

Hersey-Sparling
Meter Company
HERSEY PRODUCTS
DEDHAM, MASSACHUSETTS

Branches: Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Kansas City, Mo., Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle.

Seal Coating with Cationic Bitumuls produced uniformly fine results in spite of early showers

CATIONIC BITUMULS SPEEDS SEAL COATING IN TACOMA

The City of Tacoma, Washington, has two major sources of street maintenance problems. First, some forty miles of very old (1890-1915) sheet asphalt surfaces. These are now badly cracked and extensively patched. Second, several hundred miles of streets that have only a light bituminous treatment. The ever-increasing traffic load is starting to cause trouble on these.

In the past, the City has settled for continuous patching on the sheet asphalt; and Seal Coating of the light bituminous arterials, using either anionic emulsions or cutbacks. The Seal Coating required closing the streets to traffic for long periods; and weather was a constant threat, restricting the work seasonally.

City maintenance forces were quick to see two major advantages of Cationic Bitumuls when it was first introduced. A—This material had a natural affinity for the cover aggregate being used. B—The rapid-setting characteristics sharply reduced the danger of "wash-off" from rain. (When showers actually occurred within two hours of job completion, there was no damage!)

Based on earlier work the City was able to "field" a well-integrated Seal Coating team. Cationic Bitumuls sets rapidly so that Seal Coating operations were co-ordinated even more closely. Both the cover-stone truck and the pneumatic roller could follow very closely behind the distributor!

The Seal Coating operation has now been extended to the "ancient" sheet asphalt pavements. Here it prevents the break-up action that made earlier patching necessary.

Using Cationic Bitumuls, streets are closed to traffic a much shorter time; and the work season begins much earlier in the year.

Discover for yourself the ability of Cationic Bitumuls to extend the work season; and to coat and hold most aggregates—even those normally regarded as "difficult". Bitumuls Engineers in our nearest office will supply full information; and will arrange for you to see a Cationic Bitumuls job in your area.

Close-up view of a Cationic Bitumuls Seal Coat. Note uniform cover-stone retention

American Bitumuls & Asphalt Company

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BIG PERFORMANCE... LOW MAINTENANCE WITH PINNED-DOWN STABILITY

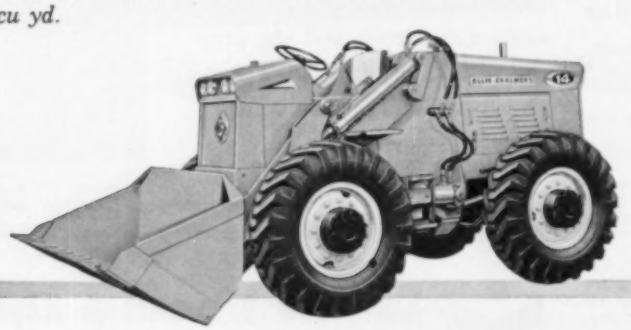
Allis-Chalmers tractor loaders feature axles that are pin-connected to the frame with thick steel pins . . . not automotive-type U-bolt connections. Tractor loaders stay on the job . . . not in the shop.

Pinned-down stability—that's what you get in Allis-Chalmers tractor loaders. Axles on these units are pin-connected to the frame with thick steel pins . . . not lightweight U-bolt connections. There's no rolling or shifting under load . . . no grief with bolts working loose . . . or mounting plates warping out of shape.

Pin-connected axles keep Allis-Chalmers loaders on the job . . . not in the shop. There's far less downtime due to annoying axle problems. You'll also profit from: *extra stability* from a longer wheelbase to length ratio; *single-lever control* of all speed and direction movements; *five-way hydraulic filtering* for safe, efficient operation; *well-located dump cylinders* that are up and away from dirt and *high lift—long reach* for fast, easy loading cycles.

See Allis-Chalmers loaders in action. Be convinced that these units can bring you extra earnings on all excavating and loading work. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.*

Allis-Chalmers offers 6 tractor loader models—ranging in power from 76.5 to 184 horsepower—in carry capacity from 3,600 to 10,500 lb and with buckets available from 1 to 6 cu yd.



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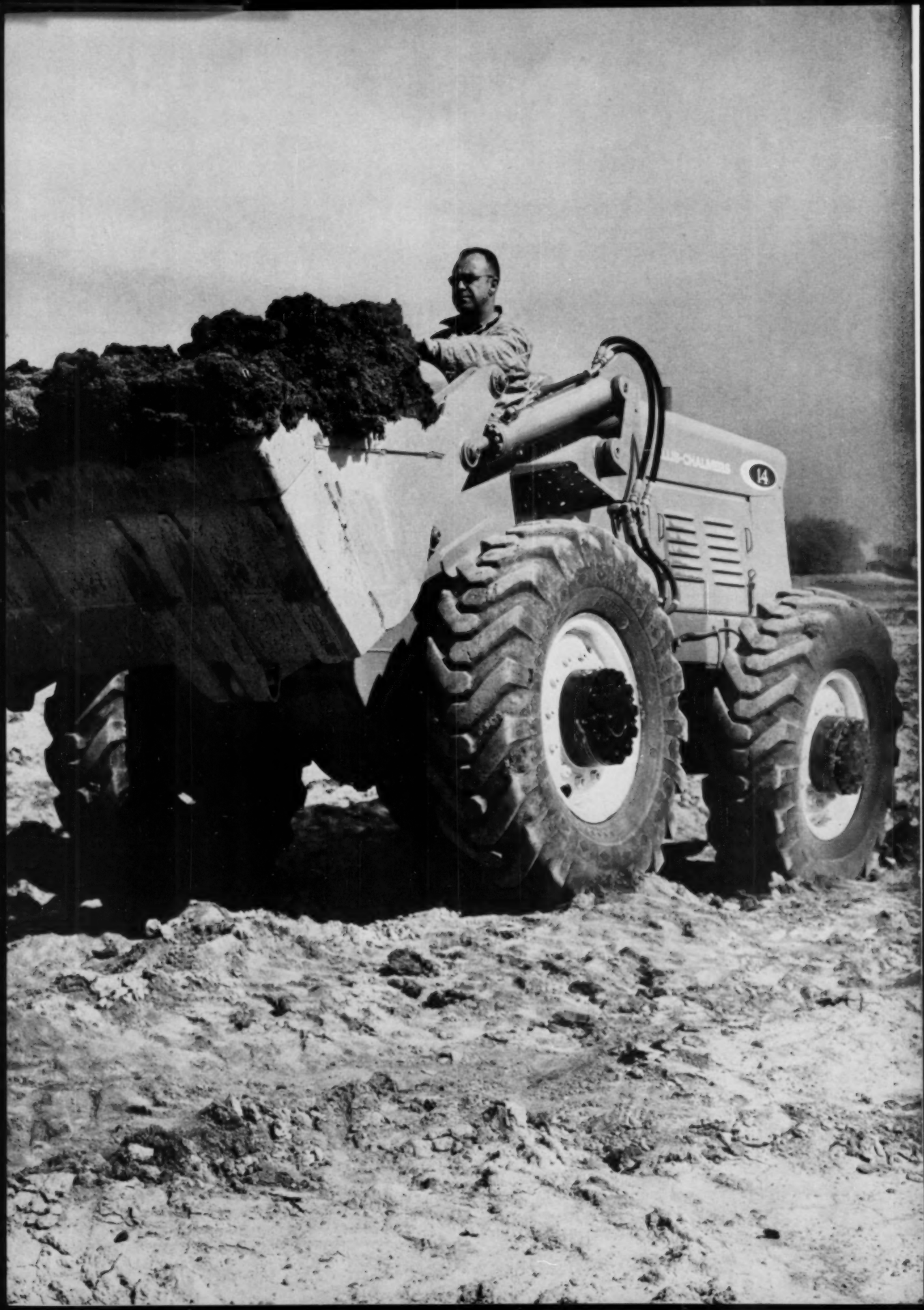
Performance
Operator comfort
Wearability
Ease of maintenance
Reliability

WITH **ALLIS-CHALMERS**
POWER FOR A GROWING WORLD


14

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Your Answer: SNOW PLOWS From GOOD ROADS

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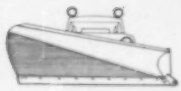
A complete line of reversible and one-way plows. All styles and sizes. Write for full information.



Good Roads GOOD ROADS MACHINERY CORPORATION
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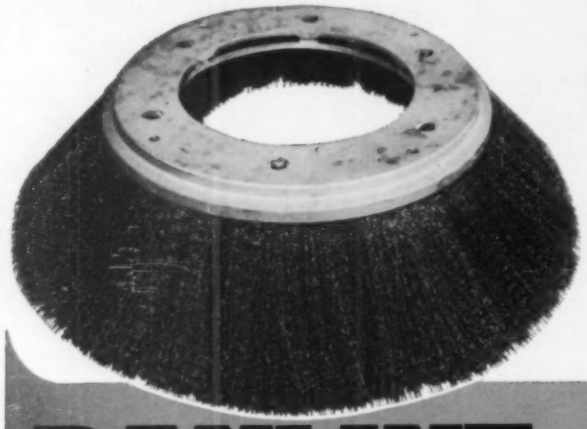

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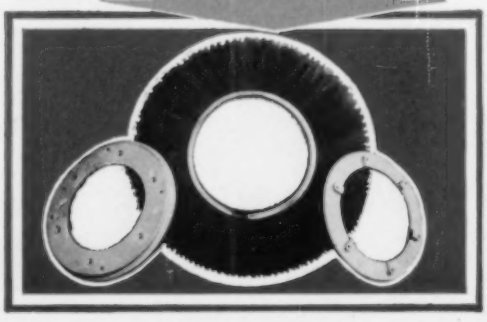
Only with Danline Premade Gutter Brooms can you strip and refill worn brush sections in minutes — *instead of hours!* Unique construction of Danline housing holds complete gutter broom in one premade section. Remove only 6 bolts, insert new section, fasten bolts — you're ready to resume sweeping. Factory fabrication insures proper balance of brush, eliminates shimmy. Easy! Simple! Economical! Write now for facts and illustrated literature.



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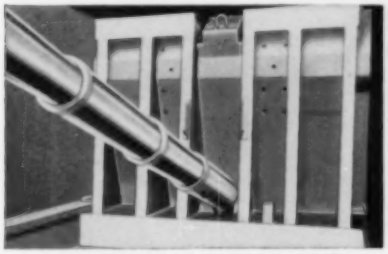
Hydro E-Z Packs help win 3 new municipal contracts

ADAM SCHLEINING, President, Santa Ana Commercial Co., Inc.

"We're saving at least $13,760 monthly with 32 Hydro E-Z Packs"—

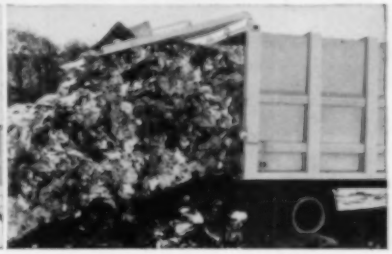
In Santa Ana, Calif., Adam Schleining, President, Santa Ana Commercial Co., Inc., reports, "Our fleet of 32 Hydro E-Z Packs is saving us at least $13,760 monthly compared with the costs of operating open trucks. We are handling about 10% greater volume with half the number of trucks and men, even though our former equipment was self-packing." Mr. Schleining figures that E-Z Packs save two 40-minute dump trips daily per unit. And since one man with one E-Z Pack averages 375 pickups daily, efficiency is up 110% over trucks with 3-man crews.

"With this efficiency, we have won 3 new municipal contracts in 2 years on low competitive bids," Mr. Schleining said. For the full story see your Hydro E-Z Pack distributor or write us for a free copy of "The Big Squeeze."



76,600 lb. maximum pressure is applied by telescopic cylinder. E-Z Pack is world's most powerful refuse compactor.

One-piece door with strong box section framing absorbs compaction force, keeps its shape. Body stays watertight.



No hoisting! No chains or weights needed to hold down front end. The same blade that compacts refuse discharges fully packed load.

Hydro E-Z PACK

HYDRO E-Z PACK®

HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., GALION, OHIO

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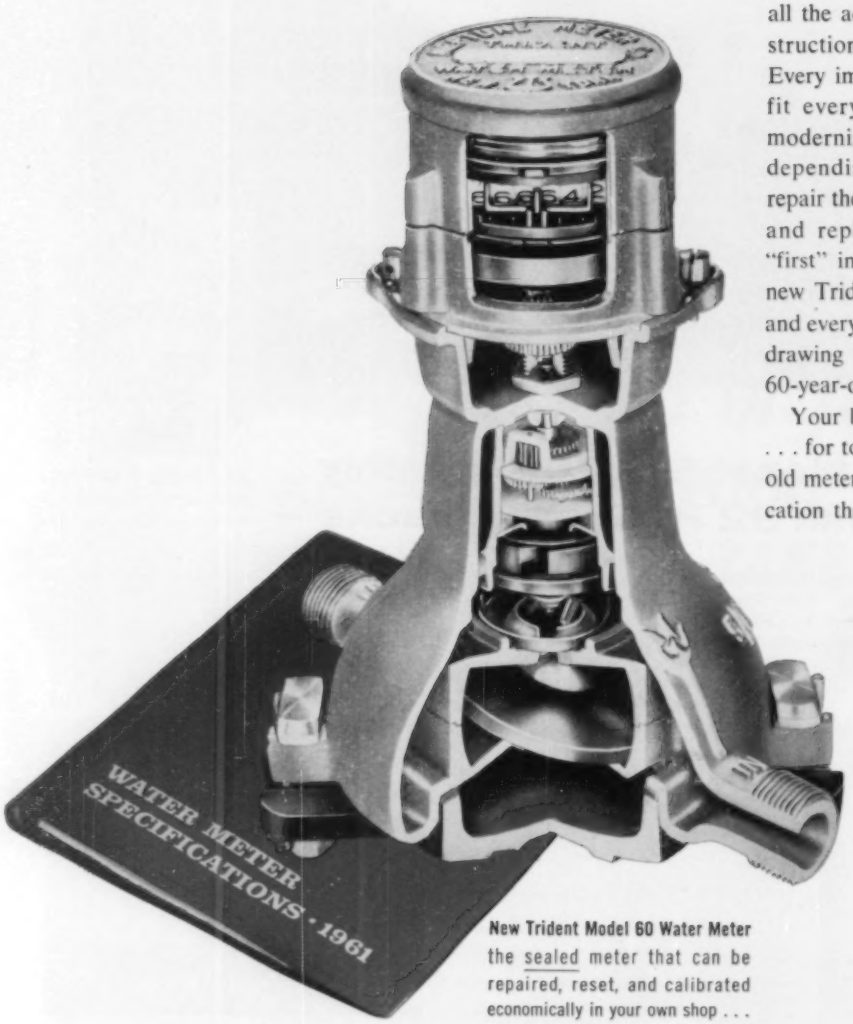
are your meter specifications **REALLY** UP TO DATE ?

It's good business to take advantage of every improvement. It's also good business to avoid the pitfalls of progress . . . common pitfalls like obsoleting previous investments at a loss . . . or committing yourself to a new design that turns out to be incompatible with the next improvement . . . or burdening yourself with too many makes and models to take care of.

Trident disc meters give you flexibility, all the advantages of modern sealed construction, and protect your investment. Every improvement has been designed to fit every older Trident. You actually modernize any or all of your Tridents, depending on your conditions, as you repair them . . . at far less cost than "scrap and replace" programs. Every design "first" in Trident's history, including the new Trident Model 60 Sealed Meter . . . and every design improvement now on our drawing boards . . . maintains this rigid 60-year-old policy.

Your best assurance of up-to-date-ness . . . for tomorrow as well as today . . . for old meters as well as new . . . is a specification that reads "Trident."



New Trident Model 60 Water Meter the sealed meter that can be repaired, reset, and calibrated economically in your own shop . . . with complete interchangeability of parts that fit older Tridents and eliminate scrapping major units because of wear in minor parts.

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AUGUST 1961

The American City

Paving Is The Mayor's Business

Newport's mayor and council sell the city's property owners on the benefits of a street-paving program using soil cement

By **BILL DUNCAN**, Mayor, Newport, Ark.*

The property owner usually initiates a paving program on a petition basis but the mayor can do much to promote such action. This is particularly true where little action has taken place over a period of years, as was the situation in Newport, Ark.

Newport (population slightly over 7,000), the county seat of Jackson County, had a maintenance program that could best be described as a "squirt, settle the dust, patch and fill" type. What we needed was a permanent-type paving program and I was convinced the people would back up such a program if given the details and costs were kept reasonably low.

With this in mind, the writer, as mayor-elect, attended the Arkansas Municipal League convention with the explicit purpose of locating and buying a second-hand asphalt plant. However, discussions with mayors from various parts of the state led to the consideration of soil cement. This appeared to be the answer to Newport's street problems and further investigation by visits to numerous cities with soil-cement experience removed any remaining doubt.

The next step was to convince others. In February 1960, a delegation of aldermen, bankers, chamber-of-commerce executives and other interested parties visited North Little Rock to inspect soil-cement streets and see actual paving operations. This city, with its own forces, paved over 1,000 blocks in the past three years. All who made the trip were convinced that soil cement offered the best solution to our problem. Now all we had to do was sell the public and obtain the necessary equipment.

Equipment Purchased

Limited funds made it necessary to purchase used equipment wherever possible. Financial help came via an agreement with the Newport Airport Commission to split the cost of all equipment for the program. The Airport Commission planned to improve the landing and taxi strips.

To turn a bad street into a good one, the street crew scarifies the base and blades it to proper crown and grade.

Upon authorization we (mayor and council) visited dealers in two states and purchased over $30,000 worth of equipment (price when new) for slightly less than $15,000. Some of the items were Army surplus. With the purchase of a Seaman pulvimixer, a Caterpillar D-4 tractor, a Tampo sheepsfoot roller, a Bros wobble-wheel pneumatic roller, and a new Hi-Way cement spreader we were ready for business. The Street Department already owned an Austin-Western motor grader, a home-made sprinkler unit mounted on a Ford chassis, an Essick 5-to-8-ton steel-wheel roller, one Littleford asphalt spreader on a Chevrolet chassis and a small Ford tractor. This gave us all we needed in the line of equipment.

Next came the determination of costs. With the aid of a field engineer from the Portland Cement Association we worked out a plan whereby city forces would pave

* Mr. Duncan began his political career as an alderman in 1958. One year later the voters of Newport elected him as mayor. One plank of his platform consisted of inaugurating a permanent street paving program, the first that the city has had in 25 to 30 years.

Mayor Bill Duncan

After preliminary blading and grading, the crew carefully adds the required cement . . .

. . . and then mixes the base material, carefully adding water to attain the proper moisture content.

streets from 18 to 27 feet wide for $1 per running foot for the property owner. In addition to supplying equipment and manpower the city would also pay $1 per foot. This cost of $3 per lineal foot of street includes labor, material and amortization of equipment.

Educational Campaign

By May 1960, we were ready to start an educational campaign to convince our people of the need for and the benefits of a street-paving program.

Articles in the daily and weekly papers, talks by the writer before every civic club in the community, and soil-cement samples in store windows and bank lobbies carried the message to every citizen. The finale consisted of a mass meeting at the courthouse where we circulated petitions for the paving program.

The City Council set a minimum goal of 25 blocks of paving for the 1960 season and started a house-to-house canvass to obtain signatures. Cash payments were deposited with banks, both of which supported the program, arranged short-term loans for those unable to pay cash.

On July 21 the city, at its own expense, paved one block of a heavily travelled industrial street. This served two purposes. First, it showed the people what a soil-cement street looked like. Second, it provided a training ground for an eight-man paving crew. A PCA field engineer provided the instruction and also helped to supervise most of the paving work which was completed in the 1960 program.

While work was in progress the aldermen visited new prospects for the 1961 program. At the same time a demand arose for placing concrete curbs and gutters. To meet this, the city negotiated with a local contractor to install them for $1.35 per running foot. The property owners who ordered this work received priority on street paving. This year city forces are installing curb and gutter as well as soil-cement paving. The price remains at $1.35 per foot.

The Council received a full report of the program at its November 7th meeting. At this time the writer challenged each of the eight aldermen to solicit ten blocks of paving for 1961, pledging 20 blocks for himself to arrive at a 100-block goal. The 1961 program is now underway and only a few more signatures are needed to reach this goal.

As in 1960, we again started the program with a special job, this time a city park drive requiring about 10,380 square yards of paving. Former Mayor P. H. Van Dyke became interested in the park drive last winter and was instrumental in raising, by public subscription, $8,816 for the project. We estimate the work can be done for about 85 cents per square yard.

Access Routes

At present we are negotiating another job, this time with the School Board, for 14,000 square yards of access roads and parking areas around several schools. Other pending projects include work with the Federal Housing Authority and local real-estate developers.

Prior to the 1960 program we

Compacting is accomplished in three stages, first with a sheeps-foot roller . . .

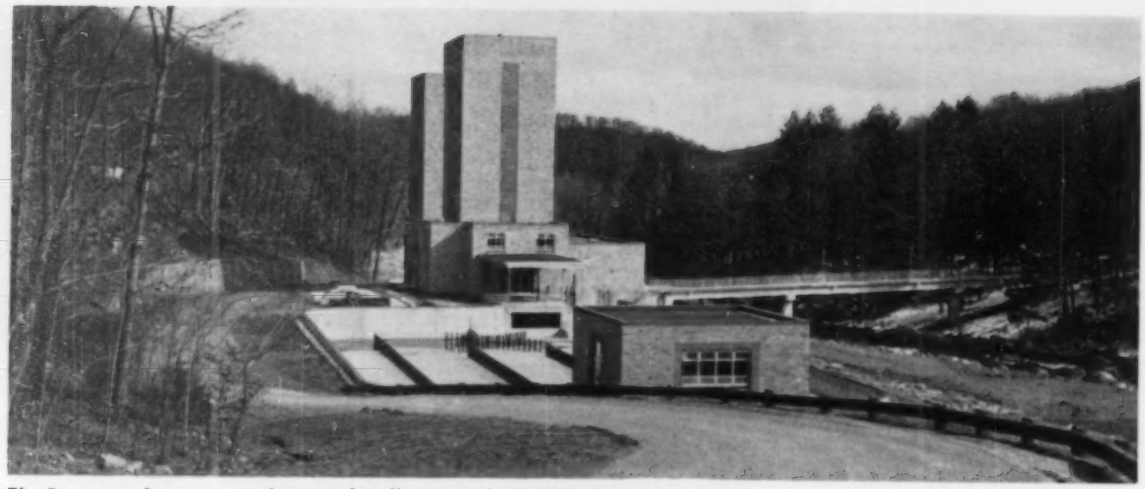
. . . second with a pneumatic wobble-wheel roller which provides kneading action . . .

. . . finally, a steel-wheel roller provides a smooth, flat surface.

made tests in all sections of the city to determine the proper cement content. All areas paved to date required an addition of 9% cement for optimum results. The photographs illustrate actual paving procedure. We use a double-surface treatment and apply the second seal coat 24 to 48 hours after the first coat. The steel-wheel roller compacts the pea gravel after each application and traffic is kept off the pavement between seal coats.

We are just scratching the surface with our program but know we are on the right track. Last winter's weather treated our streets roughly, yet not a single soil-cement street was damaged. The six-inch soil-cement base is the answer for residential and light commercial streets and may be the answer for our industrial streets too. The one block paved last year as a sample carries trucks from a large cotton oil mill, a cotton gin, a ready-mix concrete plant and two oil-company bulk plants. After more than one year of service it is still in excellent condition. ◄◄

Application of a wearing surface completes the job and consists of applying asphalt followed by a cover of pea gravel.

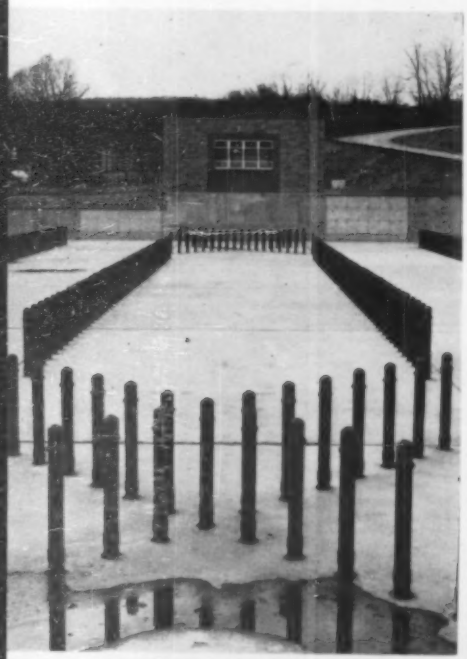


The Pequannock treatment plant can handle up to about 100 mgd with only two operators per shift; the bridge leads to the chemical unloading facility.

Better Water and More of It

New dam increases reservoir capacity of Newark, N. J., while water-treatment facilities insure a better product

By **GEORGE W. ANDRESS**, Director, Department of Public Works



Aeration is accomplished by 364 nozzles in the aeration basin.

Newark, N. J., obtains water from two sources, the Wanaque supply of which the city owns about 40.5%, and the 100%-owned Pequannock River supply. It is necessary to pump water from Wanaque to reach the higher portions of the city, while the elevation of the Pequannock is high enough to serve all parts of the city by gravity flow. It is the latter supply that we are improving.

The improvement program consists of four major items having a total construction cost of approximately $9,000,000. These are:

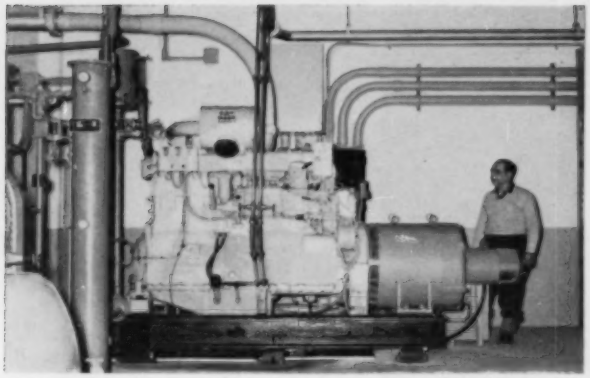
- **The Charlotteburg dam and reservoir.**
- **Diversion of the Farber Brook drainage area.**
- **New treatment facilities.**
- **A diversion dam across the outlet of Echo Lake.**

The amount of additional water made available by the improvements naturally varies according to precipitation each year. However, our engineers, Parsons, Brinckerhoff, Quade & Douglas of New York estimate that for a drought to be expected once in 100 years, the full use of all available storage in several impounding reservoirs will support an average daily supply of 58.7 mgd as compared to the pre-construction figure of 49.2 mgd. This, of course, is under the most adverse conditions possible.

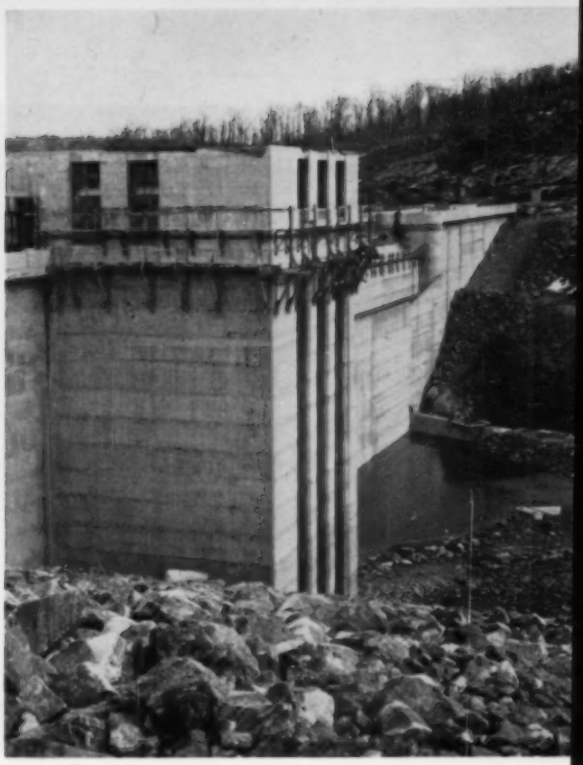
While the raw water is the same, our customers are now getting a better product. Fortunately the stilling effect of the reservoirs is sufficient to eliminate the need of filtration.

The treatment process consists of aeration (from spring through fall), chlorination, and the addition of lime and soda ash. We also have facilities to fluoridate the water but are not using them at present.

A 72-inch reinforced-concrete line conveys water from the intake structure constructed integrally with the dam to the screen chamber located about 2,000 feet downstream. Here two ten-foot-wide Rex traveling screens remove any trash that might



This diesel engine-generator combination will provide sufficient power to operate the plant should the electric power fail.



The Charlotteburg dam provides for an additional 2.9 billion gallons of storage capacity.

enter the intake. Two Worthington trash pumps remove the material that collects ahead of the screens and discharge it into a settling pond. Rodney Hunt sluice gates control the flow of water through the screen chamber.

The aerator, located just ahead of the chemical building, consists of a single basin 186½ feet long, 96 feet wide and 9 feet deep. Water depth averages about 5½ feet. The 72-inch conduit terminates at the gatehouse just ahead of the aerator. From here the water may bypass the aerator through a 48-inch line or enter the aerator by means of two 30-inch, three 24-inch and one 18-inch headers. These headers supply the 364 Spraco center jet nozzles in the basin.

The chemical building is a tall structure containing five floors and a basement level. The top floor houses a Dracco, pneumatic material-handling system receiver while the floor below contains the four loading chutes and two dust-collector units. Two large steel storage bins occupy the next two floors of the building.

Bins

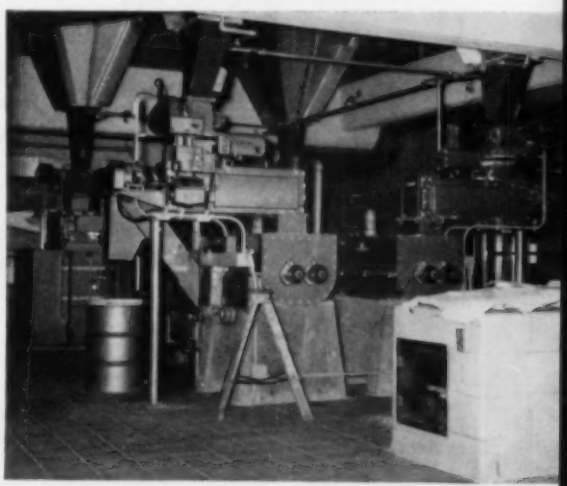
Each bin is divided in half with a separate loading chute to each half. While we could handle four separate chemicals, now we use only two. The soda-ash hoppers have a combined capacity of 250 tons, the lime hoppers 125 tons.

The main or ground floor contains all of the chemical feed equipment, a standby chlorine-storage room and the necessary offices and locker room and toilet facilities.

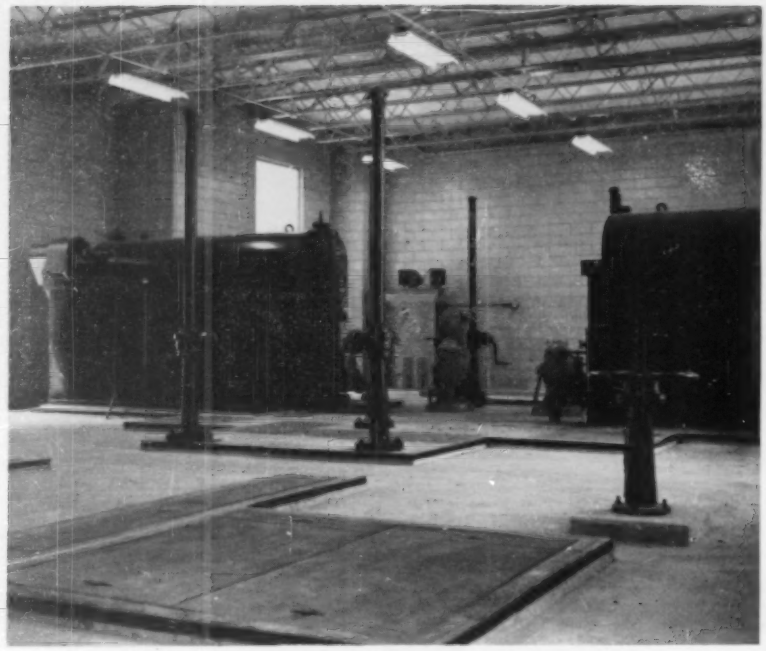
The basement houses the building heating equipment, a 330-hp Caterpillar diesel engine connected to a 250-kva Marathon Electric generator, a General Electric switchgear and control panel, and a Sutorbilt rotary positive blower for the material handling system.

Additional equipment consists of a C. M. Kemp Oriad drier for the dry chemical system, two Weinman centrifugal pumps to supply water

Bulk shipments and pneumatic handling of chemicals keep costs to a minimum.



Dry-chemical storage hoppers are connected to the feeders for continuous feed without the need for manual charging.



Water entering the treatment facilities first passes through the mechanical screens.

throughout the building, and the mixing and recirculating portion of the DorrClone system connected to the lime feeders.

Under normal conditions we purchase all chemicals in bulk and receive them at the plant railroad siding located across the Pequannock River from the plant. A foot-bridge connects the plant with the siding. Flexible hoses connect the end of the pneumatic conveyor line to the freight cars and unloading proceeds at a rate of about 15 tons per hour.

The lines connect directly to the receiver and by means of push buttons the operator can send the material to any one of the four bins. The conveyor system can also be used to unload material received by truck if this becomes necessary.

Two one-inch chlorine lines connect the chlorine tank car to the evaporators. Again, in case of emergency, a standby chlorine room contains a reserve supply of one-ton containers with an overhead monorail system and a two-ton-capacity P&H chain hoist. Cylinders in use are weighed on a Fairbanks Morse scale with a rotating dial so it can be viewed from the chlorine room or dry-chemical feeding room.

Chemical feed equipment, all Wallace & Tiernan units, consists of:

For soda ash, two Merchen gravimetric feeders with nine-inch feed belts.

For lime, two similar feeders with paste-type lime slakers, each with 1,000-pound-per-hour capacity.

Two volumetric-type feeders for fluoride with dust collectors mounted on the hoppers. These units are located in a separate room.

Two chlorine evaporators, one hot-water-regulated, the other electric.

Three V-notch chlorinators, each with a capacity of 2,000 pounds a day.

One chlorine residual recorder.

Two ammoniators.

An airtight gas lock separates the chlorinator and ammoniator rooms from the remaining facilities. In case of leakage in the supply lines, no gas can escape and exhaust fans can be switched on from the outside to clear the air before the operator enters the rooms.

Two small DorrClone units operate in series in connection with the lime slakers to remove all grit and lumps from the solution. The first unit discharges all lumps and grit into a mixing tank while the lime solution goes to the raw-water line. From the mixing tank the material is pumped to the second unit which returns grit to the mixing tank and feeds the solution to the water line.

The plant office includes two B-I-F recorders that indicate and record the flow through the two transmission mains at the Macopin intake. A third instrument totalizes the flow through both lines.

"Okay, funny man. Now can I see your dinner plates?"

—Sioux City Spotlight

More Water

The new Charlotteburg dam is of the concrete gravity type, about 700 feet long, with the maximum height of the spillway about 80 feet above river bottom. The reservoir has a capacity of some 2.9 billion gallons.

Construction of the dam required the relocation of about three miles of track of the Wharton and Northern Railroad and about 2.3 miles of an unsurfaced vehicular road. Also, to prevent the flooding of a section of the New York, Susquehanna and Western Railroad right-of-way that parallels the river upstream from the dam, we constructed about 2,000 feet of concrete wall to retain the water.

The diversion of Farber Brook required construction of a 210-foot-long low-diversion dam, with a maximum height of about 7 feet and a paved channel 2,700 feet long. The diversion of Echo Lake Outlet also required a small dam plus 2,700 feet of 24-inch pipe to convey water from the lake to the conduit upstream from the screen house and aerator.

Survey work for the dam got under way in 1954 and progress has been steady since then. The treatment facilities have been in use for several months and the dam is rapidly nearing completion. We will begin to fill the reservoir sometime during the summer of 1961.

Parsons, Brinckerhoff, Quade & Douglas served as consultants on the entire program, with Herbert Kaufman and Joseph Goldbloom serving as project engineer and resident engineer respectively. Thomas P. Byrnes of the Division of Water Supply is in charge of the Pequannock Watershed supply and facilities. ◄◄

Ground units disperse fog at the rate of 50 gallons an hour.

Brevard County, Fla., with 24 years of experience in the field, finds that . . .

Solving the Mosquito Problem

. . . involves preventive as well as curative measures

An amazingly successful mosquito-control program has provided Florida's Brevard County with a new lease on life. The success of this program lies in its preventive action which now supplements the curative program.

Since the state established the county as a special taxing district in 1937, it has spent millions of dollars for control. The reduction of the total mosquito budget in each of the last three years proves the success of the preventive program which is now several years old.

Jack Salmela has served Brevard County's Mosquito District for 14 years as truck driver, equipment operator, pilot and, since January 1959, as director.

Approaches to Prevention

During World War II, the Navy introduced the airplane as a weapon in the fight to eradicate the mosquitoes. Spraying the breeding areas with DDT yielded fantastic results and eliminated the weaker breeds of the pests but resulted in an immunity build-up for the stronger strains. State funds aided the establishment of an Entomological Research Center, charged with finding effective insecticides and permanent control measures.

The district studied four major approaches to the long-range solution:

- **Draining the salt marsh areas.**
- **Ditching.**
- **Dredging and filling.**
- **Impoundment.**

None of the methods by itself could fulfill the requirements of adequate prevention.

Drainage, for example, was difficult, since Brevard County contains few mosquito-breeding areas high enough to drain. Ditching involved the problem of interconnecting thussands of small holes and ponds to provide minnow access. Dredging and filling, a spectacular means of overcoming the problem, pleased the land owner but was expensive and slow for the county's 31,000 acres of salt-marsh breeding areas. Estimates indicated the cost would reach $750 an acre for this solution using one ten-inch dredge. This method would fill only 100 acres each year.

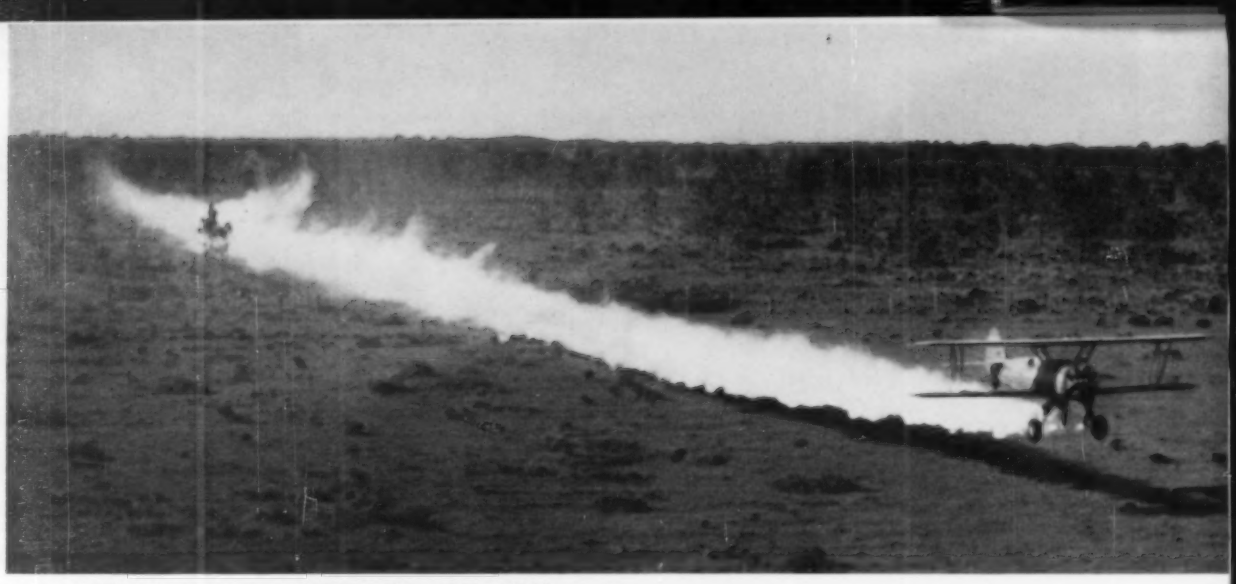
A combination of the several approaches seemed to offer the highest degree of success. Geographically and economically, impounding, supplemented by other techniques, achieved spectacular results in the control of mosquitoes. While having none of the immediate effects of temporary control like fogging or spraying, impounding has accomplished the long-range diminution of mosquitoes, is helpful in the control of sand flies (fortunately not as severe a problem in this area as in south coastal regions), and has had a sweeping and beneficial effect on the development of nearly all parts of Brevard County.

Geographically, the county is suitable for impoundment. Salt marshes cover much of the low, flat land. Three salt water rivers, the Indian, Banana and Indian River Lagoon, and the fresh water of the St. Johns flow through the county.

Most salt-marsh mosquitoes, the same type as in New Jersey, lay eggs on the leaves, grass and moist ground in areas that they know instinctively will flood. As the egg-laying continues and an accumulation builds up, seasonal rains, high tides and flooding hatch the eggs. A tremendous brood soon emerges simultaneously. After a week in the larval stage in water, they become adult mosquitoes.

As the waters recede and the breeding area dries, the second-generation cycle begins. The artificial impounding of water results in the continuous flooding of these areas and reduces the number of breeding spots.

By erecting dikes, which double



Last year district pilots used 144,000 gallons of insecticide to fog 500,000 acres in a thousand hours.

as roadways for access into these low areas and by capturing runoff from the high ground, district employees cover the breeding areas with a shallow layer of water which eliminates the egg-laying sites. The minnow population then increases naturally and controls all types of mosquito larvae.

Ditching and Diking

The district's ditching and diking work is now approximately 54% complete. In the past year it constructed 34 miles of dikes, 17½ miles of ditches and moved more than 500,000 cubic yards of earth. All salt-marsh work is complete in the southern portion of the county.

The water-control structures maintain levels in these artificial ponds at the proper height. Under normal conditions rainfall replenishes the supply. During periods of sustained drought artesian wells furnish water to many of these areas.

One of the biggest problems to overcome was the control aspect in the large salt marsh across from Titusville in the northern area of the county. Impounding, at first glance, seemed to provide the solution until calculation indicated the number of gallons of pumped water needed to cover these nearly 10,000 acres. In addition, adjoining residences only three to four feet above sea level posed a responsibility if the district tried to capture the runoff from higher land. Officials solved the problem by utilizing the runoff and providing numerous "poor man" culverts—portions of the dike built only eight to 10 inches high which allow excess water to escape with no threat of flooding. The district successfully applied this method to 7,000 acres which survived long periods of drought with no need of pumping. Over a year ago the area received a record inundation with only two reports of flooding.

This largest impoundment area suffered extensive damage late last year when Hurricane Donna doubled back after crossing South Florida to smash through the central area of the state. The county's rivers mounted to dike-breaking heights, crushing most of the newly completed work. In a matter of a few months the damaged structures were completely rebuilt.

The Cure

Fogging by plane is the most economical method of controlling the mosquitoes once they hatch. Comparative figures indicate that a plane rigged for fogging covers 1,500 acres per load at a cost of 11 cents per acre. One load sprayed from ground level costs 42 cents per acre and covers only 120 acres.

The thermal aerosol equipment on the seven war-surplus Stearman planes is home made. District mechanics removed the original exhaust collector ring from the engine and extended an exhaust pipe from each side to points approximately 30 inches below the bottom of the engine. They discharge the fog between the wheels.

A one-inch, air-driven centrifugal pump introduces insecticide at the top of the exhausts. A restriction in the line controls the fogging output to 150 gallons per hour. One pass covers a swath 200 feet to 400 feet wide.

The 72-mile length of the county dictated the need for three airports to save flying time. Most fogging is a moonlit-night operation. Only on rare occasions does the fog stratify and fail to descend. Operators often treat entire broods of newly emerged adults. The solution contains 10% of American Cyanamid's 90% Malathion, 10% heavy aromatic naphtha, 10% fog oil and 70% No. 2 diesel fuel oil. Droplet size studies indicate a mass median diameter of less than five microns.

The home-made ground fogging machines, vital pieces of equipment for the temporary control measures, cost less than $500 each to fabricate.

Dikes like these create fresh-water ponds.

Called the "Sid Smoker" after Albert Sidlow, a former district employee, the custom-made fogger resembles a jet-turbine pod in appearance.

A war-surplus Lycoming four-cylinder airplane engine powers the fogger and drives an eight-vaned fan.

The fan disperses the fog over a wide area and cools the engine during the process. Its output is 50 gallons per hour. The insecticide formula includes six gallons of 90% Malathion, three gallons of Lethane, a product of Rohm & Haas, and 91 gallons of diesel fuel. The tremendous output allows vehicle speeds of ten miles an hour which reduce traffic hazards. All other districts operate their machines at five miles an hour.

Far-Reaching Results

As a result of the combined prevention and cure, higher areas once infested by mosquitoes have acquired improved drainage. In addition, developers and builders have moved in with large-scale building projects because of the canals now available for storm-drainage-system outlets. Ten years ago much of Brevard County's 1,000-square-mile area was uninhabitable. The mosquito program, land-reclamation projects and the major operating base of the government's missile program are responsible for a gigantic jump in the county's population to 111,173 from 23,653.

The Florida Game and Fresh Water Fish Commission and the Audubon Society have enthusiastically supported impoundment as a factor in the conservation of wild life.

Many of the former salt-water marshlands are now fresh-water ponds. A fresh-water fish population now exists which feeds on the mosquito larvae. Another effect, and an important factor in the conservation of Florida's fresh water supply, is the immense head of fresh water which resists the intrusion of salt water into deep wells.

The current budget for mosquito control totals $400,802. The permanent staff of 35 swells to 50 for the pest season, from April to October. Total assets of $500,000 include the seven Stearmans, 16 ground foggers, two ten-inch Ellicott dredges for filling, seven draglines, two bulldozers, three combination office-hangars and one lowboy.

The continuing program envisions the day when the county's boondocks will be vast recreational areas for hunting, fishing and boating. Ten years ago almost everyone considered this an impossible dream. But a decade ago, too, swarms of mosquitoes were an accepted, if noxious, fact. Now, the sighting of an occasional pest is a problem of at least minor magnitude. ◄◄

←

Two dredges work constantly to fill all breeding places and provide an interlaced system of canals.

→

Man-made waterways like this one reclaim land which provides additional tax revenue when development follows.

The operator of the twin-engined sweeper handles a heavy dirt accumulation like this in a single pass . . .

←

. . . by slowing down the vehicle while at the same time maintaining effective broom speeds.

Street Cleaning Starts Strong

. . . in urbanized Baltimore County, Md., and a constant search for new methods and equipment promises well for the future

By **C. E. FARLEY***

Baltimore County recently embarked on a program that eventually should result in all streets with curbs and gutters being as clean as those in most cities. This is no easy task, for while our approximately 1,250 curb miles are less than that in the larger cities, ours are spread out over a much greater area. Then too, many of these streets have homes on one side and open land on the other. On these streets heavy rains often wash dirt onto the pavement.

Another factor adding to the difficulty of the work is the rapid but widely scattered growth. We now have a population of about 500,000 persons; a gain of about 200,000 persons in the last ten years. Subdivisions may crop up anywhere in our 610-square-mile area necessitating miles of travel between jobs by the sweepers.

Three Divisions

Our present goal is to cover every street having some form of curb and gutter at least twice a season. To expedite the work we operate three divisions, each with its own equipment, crew and foreman. Responsibility for the entire street cleaning operation rests with Jack Rudasill, superintendent of street cleaning. His familiarity with and ability to operate every piece of equipment used for the work is particularly important for we are still training men and setting up procedures.

The three divisions, with equipment and manpower are:

Central Division—

Two 1957 single-engine Mobil Sweepers equipped with single gutter brooms.

One flusher (all flushers are 1,500-gallon-capacity South Bend units mounted on Ford chassis).

Three dump trucks; one is a Ford, one is a GMC and the third is an International.

One rubber-tired front-end loader (all loaders are Ford tractors with Select-O-Speed transmissions having ten forward speeds and a two-speed reverse).

Two leaf collectors (all leaf collectors are Tarco "Litter-Getters," trailer mounted).

Manpower consists of a foreman and 13 men; an operator for each piece of equipment (excluding leaf collectors), two men for moving parked cars, one white wing, and four men who operate two refuse collectors which are used for special collection work.

The last four men are part of the Central Division force but normally

* Mr. Farley is chief of the Bureau of Sanitation, Baltimore County, Md., and as such is responsible for street cleaning and refuse collection and disposal.

Here he backs the machine to show how well the gutter broom moves hard-packed dirt from the gutter into the path of the main broom . . .

. . . and then continues with the sweeping, leaving a clean street in his wake; note the marks on the curb face showing the depth of the material removed.

not associated with street-cleaning duties.

Western Division—

One 1960 twin-engine Mobil Sweeper.

One flusher.

Two dump trucks; one GMC and one International.

One front-end loader.

One leaf collector.

Two white wings.

Personnel consists of a foreman and eight men, including one man to move cars.

Southern and Eastern Division—

Two 1960 Wayne sweepers with dual gutter brooms.

One flusher.

Three dump trucks, one Chevrolet, one Federal, and one GMC.

One front-end loader.

Two leaf collectors.

One white wing.

This district has a foreman and nine men, including one man to move cars.

Procedure

Two conditions determine, to a great extent, our present method of operation. The first is the amount of material removed from many streets. We are now cleaning subdivisions up to six years old for the first time. The second is the haul distance. Although we constantly look for dumping spots as close to the working area as possible, the hauls are usually too long to be made by the sweeper. Thus, the sweepers dump in some central spot within the working area (a dead-end street if possible) where the front-

Whenever possible the sweepers dump their loads at some central point in the area . . .

. . . for removal by a front-end loader and several dump trucks; dead-end streets are ideal for this.

A flusher goes over the route to wash away the last traces of dirt.

end loader transfers it to the trucks for final disposal. In most instances all the trucks assigned to each district are kept busy.

As in most cities, parked cars pose a problem. We use four men to move cars, two in the industrial and apartment-house district and one in each of the other districts. They do not move the cars themselves, but contact the owners and have them do it. Where the owner cannot be located and the area around the car is quite dirty, they use a hand broom to sweep the material so that it can be picked up by the machine.

In the individual-home areas the cars can usually be parked in the driveways thereby clearing both curbs at the same time. In the apartment areas the people are asked to move the cars to one side of the street and then, after sweeper has passed, to put them on the opposite side. This system works quite well.

These same men also hand sweep around various spots that cannot be reached by the machines.

The white wings work the various commercial areas, keeping the necessary tools at the local police stations. This eliminates the need of transporting the carts from place to place since each man does cover several widely spaced areas.

All streets are flushed after being swept.

Experimentation

Since the county-wide, systematic program of street sweeping is new, we have much to learn. The expanded program meant additional manpower and we are still in the process of training the crews. Mr. Rudasill feels that every man should be thoroughly trained to do several jobs or operate several pieces of equipment and is working toward this goal.

We are still experimenting with various materials for both main and gutter brooms. Many miles of our streets have rough seal-coat type surfaces and here we find the wire sweeping brush works best and the Danline construction very satisfactory.

With heavy dirt accumulations, dust can become a problem. We are just beginning tests with various wetting agents to be added to the sweeper water supply with the hope that this will be an effective dust reducer.

Regarding equipment, we find the Select-O-Speed transmissions on the front-end loaders real time and work savers. With this type of transmission the operator can go through all speeds and even reverse without using a clutch. Here the increase in speed with less work means more efficiency.

Our twin-engined Mobil Sweeper can almost be called an experimental machine. We had it equipped with dual drives, a special air-ride seat on the right side, padded arm rests and a hydraulic lift on the dirt reflector. All this is designed to make its operation easier and more comfortable and therefore more efficient.

This unit also includes a Sangamo Tachograph to give a complete visual record of the machine's operation such as stops, motor running but not sweeping, loads dumped, etc. This information will be helpful in determining costs.

The twin-engine feature is particularly important in areas of heavy or incrusted dirt. By slowing the vehicle to a crawl but still maintaining a good sweeping speed on the brooms (one engine drives the vehicle, the other the brooms and associated mechanisms) the operator can pick up several inches of hard-packed dirt in one pass.

Cost Data

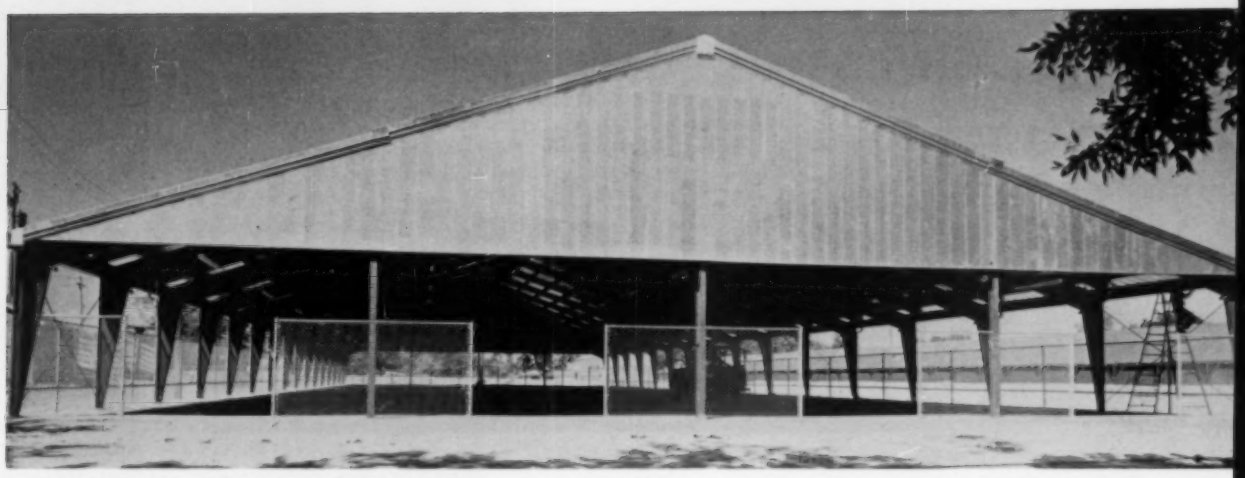
While we have done some street sweeping in past years, we kept few records. Under the new program every operator, regardless of the type of equipment, must turn in a daily log. This shows work done, material or supplies used (gasoline, oil, water, etc.), unusual events, repairs needed and other pertinent data. The foreman of each crew must also turn in a daily work report. The office clerks enter this information on permanent records.

One record consists of an equipment log for each piece of equipment. From this record we can ascertain the actual cost of operating the equipment over any given period of time. Repair and maintenance costs will aid us in determining when the equipment should be replaced.

The ability to determine these costs should prove invaluable in future purchases. Many public works officials face the necessity of purchasing on a low-bid basis. However, the lowest first cost may be the most expensive in the long run and only actual experience and operating records can bear this out conclusively. Thus, in the future we will be able to support purchases other than the low-bid item as being more economical in the long run.

Maintenance is not a forgotten item. The sweepers are hosed down and necessary lubrication performed each night. At the end of each week, all equipment receives a thorough washing with high-pressure hoses attached to the flushers. About every two weeks the vehicle cabs are waxed. Keeping the equipment in good appearance and mechanical condition not only helps us get the most value from the equipment but also serves as a morale builder. Given a good piece of equipment, a properly trained operator will keep it that way.

We have not kept a complete set of records long enough to determine unit costs of the various phases of street-cleaning work. However, by the end of this season this should be possible. This information plus that gained from field tests will be used to upgrade our program. Also, the second and third round of sweeping should be easier since much of the work is now being done in virgin territory. ◄◄



Open sides provide light and ventilation.

County Building Doubles As Ice Rink

By **BEN H. CRUCE**
City Manager
Greeley, Colo.

Livestock shows in the summer and ice skating in the winter are the result of cooperation between Weld County and the City of Greeley, Colo. Various groups have also held picnics and rodeos in the new building constructed by the county and the local 4-H Club.

An economical roof over the old facilities makes the difference. The 100-by-300-foot area now boasts of shade, ventilation and light with its new Armco pre-engineered steel building, the sides of which are completely open. Spectators and the 4-H exhibitors at the livestock show particularly appreciate the protection from the sun and the adequate ventilation now provided.

The county and the 4-H Club allow us to use the building for free ice skating in the winter. The city hires instructors, floods the entire area and maintains the ice for this popular sport. The roof protects the ice from the sun's rays and shelters it from the frequent snowstorms while the open side eliminates the necessity of daytime lighting.

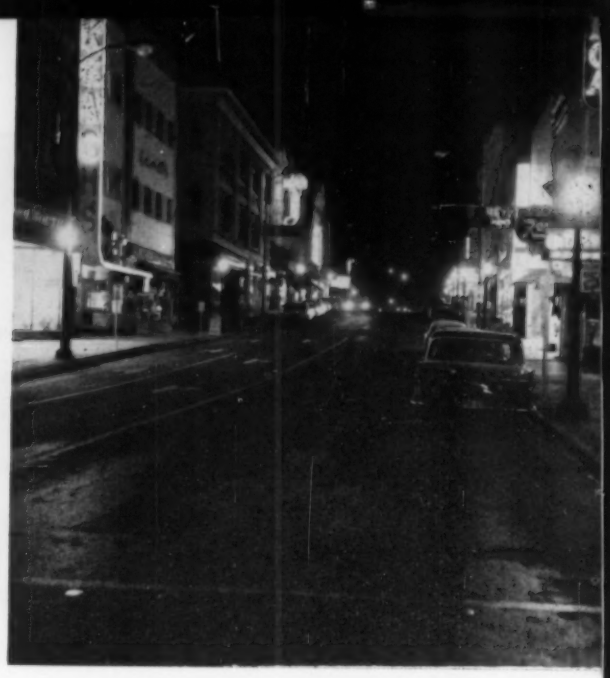
The new building and city-county cooperation combine to provide better facilities for all our people. They show their appreciation by turning out in ever increasing numbers for the programs and entertainment which are now offered in the new shelter. ◄◄

Summertime brings the livestock shows . . .

. . . and winter produces the skaters.

Planning Program Brings Real Results

. . . in better streets, street lighting, water and sewer service, fire protection and flood control



By **W. H. HIGHTOWER**
City Clerk
Hopkinsville, Ky.

You have to give the ladies credit—along with a mayor and council who worried about what was good for Hopkinsville first, and whether they would be reelected second. The mayor and council initiated the program against rather tough odds. The League of Women Voters backed it, volunteered their services to get the program under way. And, encouragingly enough, the people of Hopkinsville approved of the results by returning to office the full slate of officials responsible for it.

Even as late as after World War II, we had no state enabling legislation permitting us to enact zoning ordinances that would prevent abuses in residential areas. Nevertheless, Mayor F. E. Lackey, during his first term, succeeded in enacting such an ordinance that served its purpose well until 1950 when a test court case invalidated it.

Temporary Setback

In spite of, or perhaps because of these difficulties, the climate for zoning and planning improved. The State of Kentucky passed enabling legislation and, in cooperation with the federal government, established a department of planning and zoning that offers aid to participating cities.

Accordingly, the city appointed a planning-zoning board and signed a contract with the state through which technical assistance was provided. But in order to start planning work we needed land-use statistics and had no funds to obtain them. Mayor Lackey took the problem to the League of Women Voters who eagerly volunteered to make the study. The women divided the city into areas, and working in teams, completed a remarkably accurate survey in two weeks. The only cost involved was that for maps used to record the survey.

Renewal Work

Soon after the survey was completed, the city was able to apply for 80 low-rent housing units and urban renewal plan funds for a 27½-acre blighted area adjacent to the downtown district. Both projects were approved subject to the approval of our Workable Program. Today all phases of this program are either completed or are approaching completion except the Housing Code, which will be ready for adoption sometime this year.

Within the past ten years Hopkinsville has had a 55% increase in population. Because of this increase, we needed good zoning acutely.

To meet this demand, the city enacted a comprehensive zoning ordinance in March 1959. This divided the city into various categories of industrial, business and residential zones; and listed permitted and prohibited land uses for each zone. Next, in November of the same year, the Council approved a set of subdivision regulations for control of land within a three-mile radius of the city limits, thereby discouraging blight in the out-of-city suburbs.

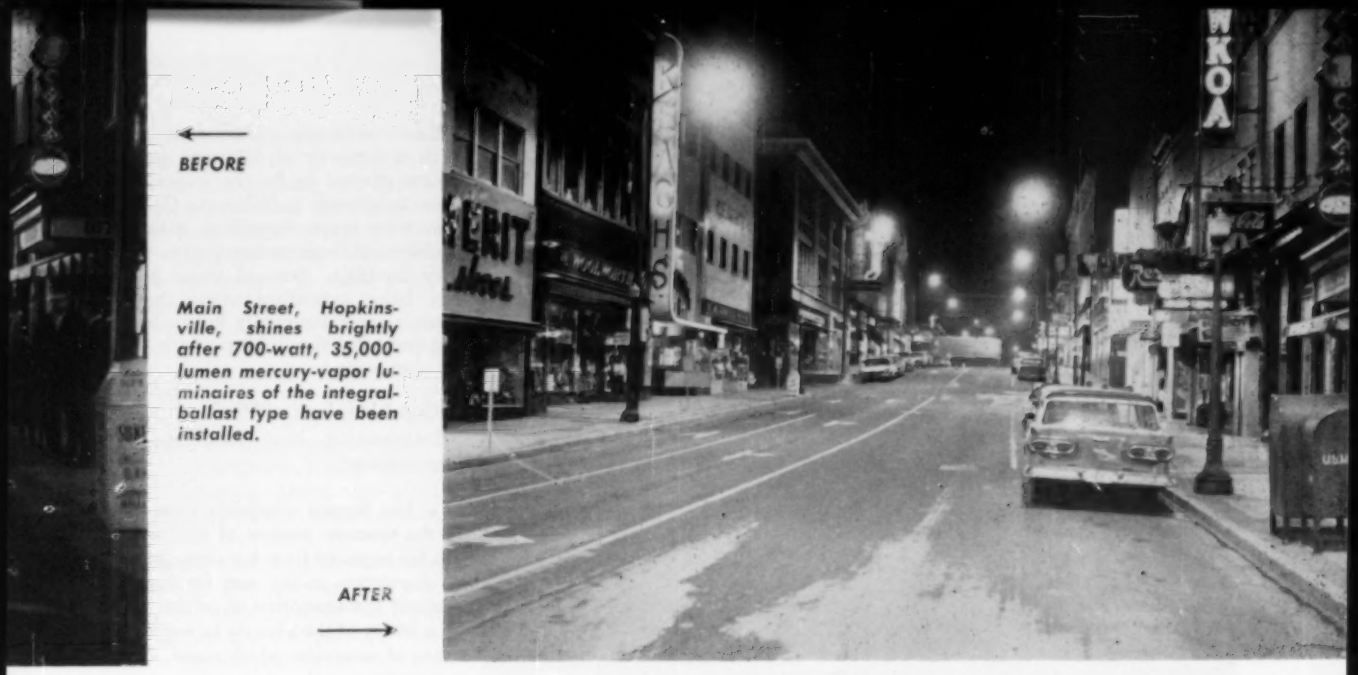
Other departments of the city have been busy planning to meet present and future needs. For over 50 years, floods have been a source of trouble annually. The Council is currently working with the Soil Conservation Service on a plan to impound water above the city to eliminate the flood problem, add a million gallons to our reservoir system and provide a 90-acre recreation area.

One of our serious problems was worn and unsurfaced streets. The city has gained enough money to pave 21 miles of these streets with two inches or more of bituminous concrete by taxing payrolls 1%.

To provide needed fire protection, we have obtained the city's first aerial ladder truck, an 85-foot American LaFrance, and also a Seagrave 1,000-gpm pumper.

Federal planning funds have been requested to design a new Municipal Center to house our fire and police facilities and a city-county jail; and a City Hall to house the administrative branches of our government. We have also dedicated space for building a library-auditorium building in the future.

We have emphasized business and public safety in our street-lighting program. About two years ago the city was lighted with 581 lamps of which 60 were 6,000-lumen ornamental post-top lights; 56 were 4,000-lumen in enclosed pole-mounted incandescent luminaires; 34 were 20,000-lumen 400-watt mercury-



Main Street, Hopkinsville, shines brightly after 700-watt, 35,000-lumen mercury-vapor luminaires of the integral-ballast type have been installed.

vapor luminaires on steel poles and 431 were 2,500-lumen open radial-wave-type lights.

The completion of a four-lane boulevard entering Hopkinsville brought us 72 new 400-watt 20,000-lumen mercury-vapor luminaires. Immediately following this project, 64 of the same type of fixture were installed on major traffic thoroughfares through the city. We also replaced the 42-year-old ornamental downtown whiteway system with 49 new 700-watt 35,000-lumen General Electric mercury-vapor luminaires of the integral-ballast type. The old lighting system developed a light level of approximately 0.3 foot candles. The new system will develop 3.5 footcandles on the street. Since this system is directly in the heart of the business district, it was installed on 30-foot steel poles at 85-foot staggered spacing. All supplied control circuits are in underground conduits.

Mercury Vapor

A nine-block section of Virginia street lying directly adjacent to this project was lighted with the same type 700-watt mercury-vapor lamps. These nine blocks were formerly lighted by 2,500-lumen lamps at each street intersection. These were the first to incorporate the ballast within the luminaire housing.

The new lighting level of 2.08 footcandles is approximately 40 times the intensity of the old. This system is also on 30-foot steel poles at 100-foot staggered spacing. The supply system in this case is an overhead preassembled cable. The new 400-watt 20,000-lumen mercury-vapor fixtures on 30-foot steel poles were installed on one of the major cross streets. Ninety-eight additional 400-watt mercury-vapor fixtures are in the process of being installed. This will complete the lighting of the 40-block downtown area.

Lighting levels will far exceed those recommended by American Standards Association and Illuminating Engineering Society Standards. Also in the process of being installed is a group of 25 mercury-vapor lamps of the 175-watt, 8,000-lumen size on one of the highways which lead into the city's downtown area.

We also are making progress in the residential area. All 4,000-lumen lamps have been changed to 6,000. We have installed 285 new 6,000-lumen lamps in modern enclosed luminaires and have replaced 88 of the old 2,500-lumen radial-wave lights with 6,000-lumen lamps with modern luminaires. We are now installing an additional 153 6,000-lumen lamps in the residential area. Present plans include the future replacement of all the old 2,500-lumen open type lights.

After completing our lighting program Hopkinsville will be lighted by 582 incandescent luminaires, 371 mercury-vapor and 403 open radial-wave type, making a total of 1,356 lights.

Mayor Lackey anticipated our present growth and immediately upon taking office placed an order for a National Cash Register Model 31 automatic bookkeeping machine. We use this for preparation of accounts payable, for tax billing, for payroll work, and for preparation of the budget. Under his direction we set up purchasing controls and established the first budget in the city's history.

Our Water and Sewerage Commission has long-range plans for meeting needs as funds become available. This year the pumping capacity was raised from two to three million gallons daily. Provisions were made in the planning of the additional facilities to provide five million gallons daily. This work is slated to start in 1961.

The Future

We feel this is a good beginning. We have options on land that we hope to develop as a 350-acre industrial park to attract new industry. If we are successful our growth will continue and so will our planning. New schools are needed and more are being built now. More slum areas must be renewed; more job opportunities are needed and we plan to provide them through progressive community-wide activity.

Our last election proved that the local climate for acceptance of our program has improved. Only 45 days after the first collection of the payroll tax, a city-wide election of councilmen was held. A full slate of candidates pledged to repeal the tax was on the ballot against the incumbents. Not a single incumbent was defeated, proving that our people were sold on the idea that progress is worth paying for. ◄◄

The first of Delaware County's three incinerators has been in operation for more than a year.

Three Incinerators Solve Refuse Problem

Delaware County examines various methods and chooses incinerators over sanitary landfills

By **E. B. FOX, Jr.**, P.E., Executive Administrator
Delaware County Disposal Department, Media, Pa.

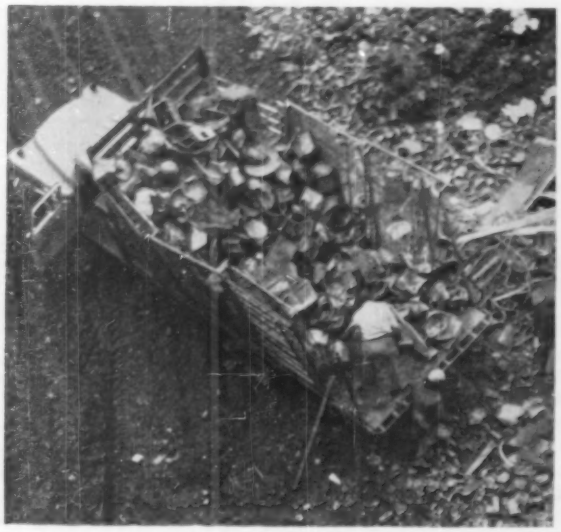
Three separate incinerators, each with a capacity of 500 tons per 24 hours, proved to be the logical answer to officials in Delaware County, Pa., who were wrestling with the problem of incineration versus sanitary landfills. One of these plants has been operating more than a year, a second recently began burning and a third will be ready in July of next year.

Why Not Landfills?

Incineration beat landfilling on four counts:

- **The largest available sites exist in the western portion of the county, too far removed from the dense centers of population in the east for the economical transportation of refuse.**
- **Many of the sites lie in watershed areas of reservoirs which supply drinking water.**
- **Expensive flood-control structures would be necessary prior to the use of swampy lowlands adjacent to the Delaware River in the east; in addition, most of this land now belongs to industry.**
- **Landfills, at best, would be nothing more than a short-term solution because they would quickly consume the relatively small amount of available land.**

Although containing only 185 square miles, Delaware County embraces 49 municipalities ranging in size from 0.07 to 19.95 square miles and from 500 to 90,020 in population. It lies immediately west of Philadelphia and a portion of its problem



The final product includes tin cans and other metals which scavengers remove.

A loader pushes the ashes into an abandoned quarry.

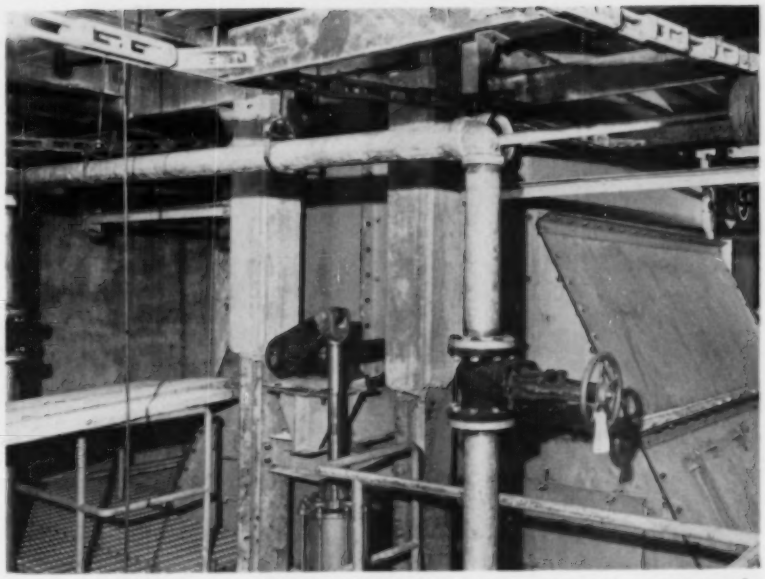
stems from its location. The eastern half of the county is suburban in character and gaining population at a tremendous rate. The supply of vacant land there is rapidly dwindling. Landfills in the west would not be convenient to these population centers.

Watershed areas which serve two reservoirs prohibit other locations which would otherwise prove suitable for landfill operations. These reservoirs eliminate consideration of the large north-central area of the county for landfills. Realty developments consume practically all the land in four other northern townships.

With the exception of the lowland swamps in five southeastern townships, no other suitable land exists in that section. Expensive flood-control structures would be necessary to protect the sites from inundation for river pollution would be a result of inundation.

Based on a fill depth of nine feet, sanitary landfills would require one acre a year for every 10,000 people. Census takers in 1960 counted 550,000 county residents. Estimates indicate that the 1980 population will reach 725,000. On this basis 20 years of landfill operations would require well over 1,000 acres. Because the eastern portion has already attained the saturation point, most of the new growth will appear in the now sparsely settled west. A land-use survey found only 30,839 of the county's 118,400 acres still devoted to farming, practically all of these in the west.

Garbage reduction, the process of cooking and dehydrating, would not provide an economical solution because the market for the resultant grease and dried material continues to decline. Other factors influencing this decision consist of the present tendency to collect in one operation all refuse, of which garbage totals only 25 to 30%. Formerly, garbage comprised approximately 65% of the total.



The double hopper and conveyor system removes the ashes from troughs below the floor grid.

Composting cost estimates appear to price this method out of reach. Several European communities report considerable success but few United States cities use this practice because of the cheap inorganic fertilizers now available.

The three sewerage authorities presently operating in the county prohibit the use of garbage grinders because of the design of the existing sewage-treatment plants does not provide for the extra load which garbage grinding would impose. This prohibition ruled out the consideration of household grinders, centrally-operated municipal stations and integral mixing plants.

Three Incinerators

The consulting engineers originally recommended that the county construct three 600-ton-per-day incinerators to dispose of all burnable refuse. After considerable study of other existing installations and closer examination of population pre-

(Continued on page 139)

The two charging hoppers at the left receive refuse from two P & H cranes.

As many as 200 complaints a year used to charge these men with prowling and stealing.

Prowlers

Sanitation Uniforms Attract Better Men

By **JOHN W. BERGMANN**
Foreman
Hyattsville, Md.

In Hyattsville, Md., a suburban city of 15,167 population outside Washington, D. C., it used to be fairly common for the Police Department to receive calls that went something like this:

Distraught Woman: "Police Department? There's a prowler in my back yard! Would you please send a squad car to investigate? Right away. He looks very suspicious to me!"

Such calls were usually received about 6:30 in the morning, and the voices of the frequently near-hysterical women were often hushed so that the "prowlers" would not hear them. Now it just happens that under our system of collection, men get trash cans from the back yards, carry them to the waiting truck, unload them, and then take them back. This means at least two trips into the homeowner's yard. Often it takes as many as four or six.

Of course, I suppose it's only natural that such mistakes should occur in the days when our men wore sloppy, nondescript hand-me-downs which they furnished themselves. Some of them looked pretty rough, for you don't wear clothing to go trash collecting if it's good for anything else, only the real dregs of the rag pile. Housewives can't be blamed for being apprehensive at seeing strange men—so poorly dressed—in their back yards.

On investigation by the police, the "prowlers" usually turned out to be the city's trash collectors on official duty.

Fewer Complaints

We used to get about 200 complaints a week about trash collectors. Now, in the average week, we won't get more than two or three. These are more than outweighed by the number of compliments we get on the good looks and on the courtesy of our men.

The reason for the drastic drop in complaining calls is that the City of Hyattsville now dresses its trash collectors and road and street workers in clean white uniforms, with "CITY OF HYATTSVILLE" on the back of each.

In the bad old days before the City of Hyattsville trash men were in rental uniforms, our men were frequently falsely accused of stealing hammers, saws, tools, rakes, anything anybody had misplaced and couldn't find.

In virtually every case, accusations such as these, were proved to be groundless.

But they were damaging to the morale of our men. Such false accusations complicated our personnel problem. Trash collecting is not highly paid in Hyattsville and it is not easy to find responsible men to fill the jobs. Putting the men in uniform had eased the task. The men take pride in themselves and their job. They feel they have some status. Uniforms have enabled us to find and to keep a better class of men.

Besides eliminating complaints and boosting morale, there are safety advantages in uniforms. In the four years since we adopted uniforms, we haven't had a single accident. ◄◄

or Municipal Employees?

Uniforms for Municipal Workmen

The National Safety Council points out that workers may be "dressed to kill" if the clothing they wear to work has such things as common dirt, missing buttons, cuffs on trousers, oil or chemical-soaked clothing and the like.

Dirty work clothing, the National Safety Council points out, "is more than an eyesore. It breeds accident and health hazards. Dirty or oil-soaked work garments often cause skin rashes and irritations.

"Such clothing may harbor bacteria and germs to infect minor cuts, skin abrasions, or burns. Once infected, minor injuries quickly become dangerous. To avoid the common, ever-present hazard of dirt, work clothing should be changed frequently and laundered or cleaned to sterile condition."

The National Safety Council also cities a number of other frequently unsuspected hazards connected with work garments.

For example, missing buttons on work garments are another accident hazard which may not be recognized as such. If a workman has lost a button on the cuff of his shirt sleeve, the dangling cuff may get caught in moving machines and drag the wearer in after it.

There is an art to selecting the right uniform for on-the-job conditions. Uniforms should be tested

← *Nobody thinks that this man is stealing the garbage can.*

before adoption for practicality under the on-the-job work conditions, color fastness and shrinkage.

Specifications for uniform service should be drawn with care and expert assistance so that at least reasonably high quality is assured. In uniform rental, as in everything else, price is related to quality. As with everything else, the cheapest price is seldom the best price.

The Institute of Industrial Launderers, 1833 Jefferson Pl., N.W., Washington 6, D. C., whose member companies supply, on a rental basis, more than 90% of the work garments used in American industry, has informed THE AMERICAN CITY that it will make its services available to AMERICAN CITY readers on request.

The products of no uniform manufacturer or supplier are recommended. On the contrary, general specifications are suggested after a study of each particular case.

What uniforms did for the City of Hyattsville, Md., is told on page 104 of THE AMERICAN CITY by John W. Bergmann. Another actual case can be quickly portrayed by Samuel A. Mumford, Superintendent of Parks of the Maryland National Capitol Park and Plannings Commission, a bi-county agency that includes populous Montgomery and Prince George's Counties adjacent to Washington, D. C.

Mr. Mumford's jurisdiction includes parks in and adjoining the Maryland cities of Takoma Park, Bethesda, Silver Springs, Chevy Chase, Wheaton, and others. Some 145 park workers who, until two years ago, furnished their own work clothing, are now in uniforms rented from a nearby industrial laundry.

"We're convinced that uniforms make all the difference in the world, especially with regard to appearance, cleanliness and morale," Mr. Mumford says.

"Appearance is the main factor. Our men used to wear a conglomeration of hand-me-down clothes. They looked terrible. Now, with their trim uniforms, we get many compliments.

"Identification is a plus factor. Our men are constantly working in areas near private homes. Now that they wear neat uniforms with an emblem showing that they work for the Maryland National Capital Park and Planning Commission, people know that they are Park Commission employees and not prowlers.

"Uniforms improve cleanliness. They are changed twice weekly and are supplied on Monday and Thursday mornings; the dirty ones are picked up at that time." ◄◄

Pittsburgh Replaces a Problem Pipeline

The water line on private property is nothing new—nor need it be a source of concern if it is protected by an easement or some long-term agreement. However, for years Pittsburgh had such a line protected only by a license issued by the Secretary of War and revocable on 30-days notice. To add to our concern, this was one of two major lines supplying the downtown area.

The 42½-inch steel pipeline was constructed across the Allegheny Arsenal in 1901. The city probably felt secure about the license as long as "Uncle Sam" owned the property, but this picture changed when the War Department sold the property to Howard J. Heinz of the "57 Varieties" fame in 1926. However, negotiations between the parties involved resulted in an agreement that once again put the city at ease.

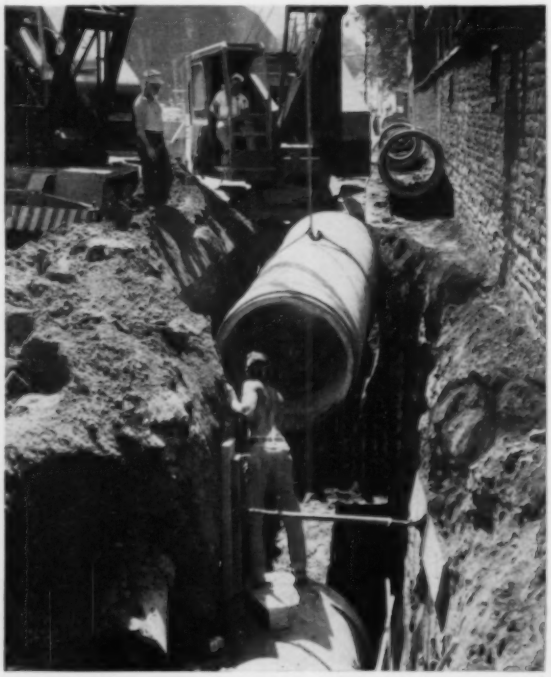
Then, in 1946, local interests purchased the property and sub-divided it into warehouses. Once again the Water Department faced the problem of suddenly having the license revoked on short notice. The possibility of the line, which was now almost 50 years old, breaking and causing serious damage to the contents of the warehouses added to our worries.

Problem Solved

While more agreements could be negotiated, the possibility of a break always remained. Thus, in 1958 the city decided to solve the entire problem by replacing the line. In this case the shortest route was not the best. We decided to keep off the old Arsenal property, now privately owned, and go around it instead. This meant replacing slightly over 1,100 feet of the old steel line with 1,680 feet of Price Brothers 42-inch prestressed-concrete steel-cylinder pipe at a cost of approximately $130,241.

Our own engineers, under the direction of Alphonse R. Ferrucci, superintendent of the design and construction division, designed the new line and supervised construction. Actual construction work was done by contract. The work included numerous connections to existing laterals, taps, valve installations and capping of the old line.

MORRIS L. WOLF
Chief Engineer
Department of Water
Pittsburgh, Pa.



By replacing a water line going through the old Allegheny Arsenal with one going around it, Pittsburgh eliminated two big worries.

The popular eight-block mall extending along the main shopping section of Miami Beach is amply supplied with off-street parking lots.

Where Malls Stand Today

One of the methods of restoring prestige to the central business district has been by means of the pedestrian mall. Many cities have provided themselves with such a mall, and some have subsequently discarded it, a notable example being Toledo, Ohio. Other cities which had been planning malls, including Boston, Mass., Fort Worth, Texas, Modesto, Calif., Indianapolis, Ind., Rye, N. Y., Evansville, Ind., and Middletown, Ohio, are said to have shelved their plans.

Establishing a pedestrian mall means a great deal more than doing away with parking in a few downtown blocks, planting some trees, and perhaps including a fountain. What it needs to catch on is a whole new atmosphere for the business district. The mall is not the beginning but the end. It should be approached by paths and streets from the parking areas close by. These are an essential part of any shopping district.

The extra attractions and devices that add stature to a mall appear to have been employed successfully in Kalamazoo and Miami Beach, where malls are especially popular.*

Elsewhere, some of the merchants are in favor of the mall, if they are on it and their business has increased, and most of the merchants are against it, if they are not on it and their business has fallen off. The city officials are in between—their aim is to please the merchants and the people by making the business district more attractive and thus attracting more business to it. When some of the merchants say that they are against the mall, that it is a failure and should be discarded, city officials can only listen and say, "If that's the way you feel about it, we'll have to dump it."

That is about the status of the mall at the present time. The point is that where someone or some committees and agencies strongly favor leisurely and pleasant treatment of the central shopping district, without sacrificing convenience and the main idea, the job is likely to be performed in an understanding and successful manner. Unless this favorable atmosphere prevails, it probably is a waste of time to consider pedestrian malls. ◄◄

* See articles in THE AMERICAN CITY on Kalamazoo (December 1960) and Miami Beach (March 1961).

When the snow began, salt trucks kept the main routes open for traffic.

The graders worked day and night for 72 hours.

A 32-inch overnight snowfall proves the need to . . .

Create a Snow Plan and Stick to It

By **PHILIP GRANNAN, P.E., L.S.***
Corning, New York

The 32-inch snowfall we received in early February of this year subjected our snow emergency plan to its most severe test. Without this comprehensive plan, the snow would have buried us.

The snow began, as it so often seems to, on a Friday afternoon. By Saturday noon the blizzard had deluged us with 32 inches, surpassing the 1940 record storm by two inches. We can usually expect severe storms to whip out of the midwest and bombard our city, making our annual snowfall average some 85 inches. But we don't anticipate one-third or more of the average winter's snowfall in one blizzard.

* Mr. Grannan has been superintendent of public works in Corning, N. Y., for the last nine years.

Salting First

When the snow began falling on Friday afternoon, we followed the predetermined procedure of salting the steep hills which surround the city with three Tarco "Scotchman" spreaders. Other crews applied sand fortified with calcium chloride on the intersections to maintain traction. Good Roads salt spreaders distributed this mixture which contains two bags of chloride to five cubic yards of sand.

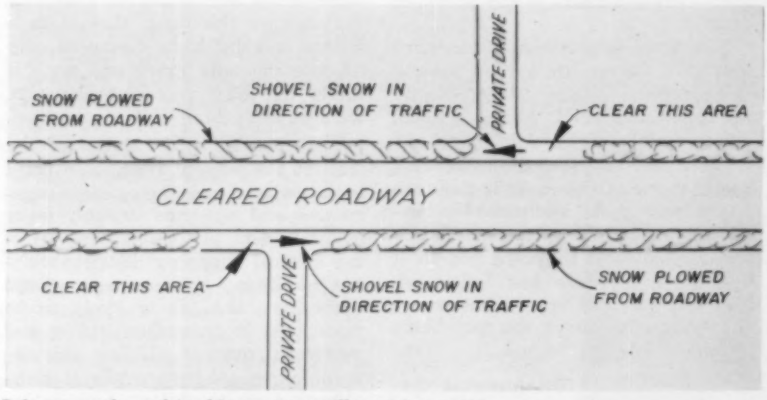
When the snow accumulated to six inches, we followed the next step of the plan and began plowing. Forecasts had not previously indicated the severity of the storm but we soon found it necessary to supplement our Austin Western grader, Hough loader and International trucks with attached one-way Good Roads plows, with the use of four additional L-W or other type graders which we rent from private contractors on seasonal bids. These rental units must be available when needed.

Three Routes

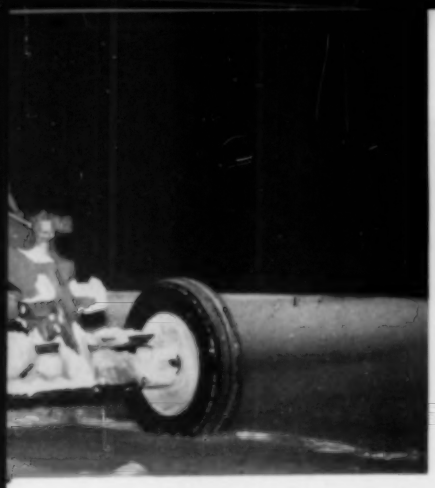
The plan divides our 57 miles of streets into three routes, which include the bus routes and the important arterial and business thoroughfares and six areas each of which contains about seven miles of streets.

As the plows completed their task of opening the main routes or, as new plows reported for work, we assigned them to the areas noted on the plan. Because each of the three main routes had one or more plows cleaning it constantly, these 18 miles of streets were always open for travel even though the number of vehicles diminished rapidly as darkness descended and the severity of the storm increased.

The plan designates which streets to clear first only in general terms. This allows the operator to concen-



Driveways cleared in this manner will remain open after repeated plowing *(see page 110).*



Clearing the streets was no job for amateurs.

trate on the severely drifted ones. If most houses face the north-south streets, the operator finds that the specifications require him to tackle these first. During this storm, we received many calls asking for the plows to open certain streets before others. The police relayed these and other calls to the two engineering department station wagons by means of radio.

Unless the calls were of an emergency nature, we continued to follow the plan, thus serving the requirements of the whole populace more efficiently.

During the height of the storm one caller even inquired of an elected official whether or not we had the skating rinks cleared. Although we have two small International tractors which plow areas of this type, their primary duties consist of clearing sidewalks adjacent to city property and the municipal parking lots. They were making scant headway at their tasks when the official received the call. Needless to say, the skating rinks remained covered with snow until the tractors fulfilled their primary tasks.

Parking Lots

We have six municipal parking lots. The small tractors assigned to them push the snow to one side or one corner. Later we haul the snow away. Because the tractors are tiny, the plowing pace is slow. Some suggest that we should aid this program at the expense of the area system to provide room for those autos which might otherwise park on the street and hamper the widening operations. Because the cure may be worse than the disease, we see no reason at present to change the existing plan of operation.

Parking Prohibitions

The business district contains an adequate number of signs prohibiting parking from 2 a.m. to 5 a.m. The SnoGo loads five ten-ton, ten-wheel trucks which haul to a stadium parking lot. This doubles as a snow storage area in winter. When exceptional storms, such as this, require more time, we hood the parking meters and continue cleaning until the task is complete.

Parked cars in residential areas cause much difficulty and result in inefficient plowing. The graders find it necessary to make snake-like paths where several parked vehicles exist on both sides of the streets. At one time we had an ordinance which prohibited parking on the odd-numbered sides of the streets at all times. The courts ruled, however, that the ordinance was uncon-

By Monday morning we had removed the snow from Market Street.

Those who parked their cars on the street were sorry.

A total snowfall of 32 inches looks like this on a parking meter.

stitutional and indicated that to make it effective would require not less than six signs in each block plus the listing of every block in the ordinance itself rather than a blanket coverage.

When we realized we had a big storm on our hands, Mayor Joseph J. Nasser, by press and radio, requested everyone who could not get his car off the street to park it on the odd-numbered side. Although backed by no official powers, owners complied surprisingly well. Plans called for the reversal to the even side the following day, but the severity of the storm prohibited this movement in most cases.

Driveways

Driveways also form a source of complaints. Our plows seem to make their second or third widening pass immediately after everyone cleans his driveway. The snow, not knowing any better, welcomes the chance to slide off the blade where this nice gap appears. We can't afford to go back and clear the driveways and we can't refuse to widen, so we recommend to the property owner that he shovel the driveway snow toward the direction of travel of the plow. In addition we suggest that he clean an area on the opposite side of the driveway so the blade will deposit the snow there before it reaches the drive. Results are good where they follow these suggestions.

Saturday noon, less than 24 hours after the storm began, found all 57 miles of street open to travel. Most of our men worked straight through to accomplish this. In addition we called upon several employees of the water and garbage departments for aid. In all, 36 men in this city of 17,035 people tackled the street-cleaning job and worked heroically to accomplish it.

True, some streets contained only one cleared lane; others followed an uncertain path around stalled autos. But all streets had a means of access for emergency vehicles. Few drivers, however, appeared on the thoroughfares until late Sunday afternoon.

Most car owners found a preponderance of snow to shovel between the garage door and the cleared lanes in the street. The main highways suffered a similar fate. Reports indicated that although most of the highways were passable, their condition was poor.

The addition of the water and garbage employees allowed the clearing task to proceed on a 24-hour basis all weekend. By Sunday morning the bolstered staff of snow fighters had accomplished enough widening to free some of the equipment for the snow-removal task in the business section. Monday morning found these streets free of snow and available for the usual parking rush. Although crews had not yet removed the snow from the parking lots, they had pushed it to one side to make most of the parking slots available.

Phones began to ring again on Monday morning—not with a barrage of complaints—but with praise for the employees and officials who performed above and beyond the call of duty. The daily newspaper editorialized that the Department of Public Works employees " . . . did the best job in the state." A local radio station also noted, "And that" the Department of Public Works "could handle the two and a half feet of weekend snow as expeditiously as they did seems to us to merit a note of praise." The council joined the group with an official commendation. These encouraging words did much for the morale of the weary snow-fighters.

Although the cost was great, the council felt that the supreme effort we contributed was justifiable. The estimated $8,500 spent for equipment rental and overtime jarred the snow-removal portion of the budget $5,000 in the red. A 14-inch fall during New Year's holiday had previously made us extremely vulnerable to more overtime.

Without our Snow Emergency Plan, we would have been lost. The Big Snow proved more than ever before how important it is to have a plan and stick to it. Light snowfalls rarely put a plan to an acid test. Big ones do. If the equipment operators had not had complete instructions, or if they had raced from one location to another at someone's whim, we surely would have received quite a different type of publicity. ◄◄

The bent grass for golf-green repairs grows in rows adjacent to a park road.

Winter construction and summer maintenance combine to form . . .

A Year-Round Park Program

By **LACY CHANDLER**, Director, Decatur Park District, Decatur, Ill.

Many skills are necessary to carry out the extensive maintenance and construction program for a large park system. The Decatur Park District has been fortunate in being able to retain skilled men throughout the year by scheduling most construction projects during the winter. At this time the maintenance load drops and without construction projects we would have to lay off many of our men. This year-round program has resulted in happier, more dependable employees and has made for a high standard of work in our maintenance construction.

Our goal is to make Decatur's park system as self-sufficient as reasonably possible. From top to bottom, our staff contains men who have spent many years in park work. Their interests lie primarily in improving and maintaining park facilities at a high level.

New Equipment

Step by step, we have acquired materials with which we can accomplish almost any project. Our new equipment includes a Caterpillar two-yard crawler tractor endloader, a Minneapolis-Moline ¾-yard wheel loader, a Minneapolis-Moline tractor equipped with loader and backhoe, two Allis-Chalmers road graders, a Vermeer stump-removal machine, a Ditch Witch gasoline-powered ditcher and many other versatile pieces. The fleet now numbers 21 trucks, from pick-ups to 1½-ton units, three automobiles and 19 tractors. Smaller units include six Homelite and Diston power saws, 14 Jacobsen greenmowers, 30 assorted hand power mowers, 60 Worthington and Toro 30-inch gang and fairway mowers, and countless other pieces.

The maintenance of this equip-

Park employees constructed this attractive office building.

This 80-by-160 foot shop structure is located in Mueller Park.

The operator raises the diamond drag between jobs.

When he reaches the ballfield, he lowers it hydraulically.

ment is no small matter. All maintenance work takes place in the Mueller Park shop which has tools to accomplish every phase of repair work except highly-specialized machining such as motor reboring. When a rebore job becomes necessary, our mechanics remove all parts and take the block to a shop which specializes in this type of job. It is seldom, however, that any equipment requires work which our men cannot do.

Building Construction

Park workers recently constructed a storage building in Mueller Park which also houses the repair and carpenter shops. The two-story building measures 80 by 160 feet. The lower half of the building consists of brick-veneered concrete block. The upper half is frame construction. Its hillside location makes the second floor accessible for loading and unloading trucks. A drive with loading docks and overhead doors completes this installation.

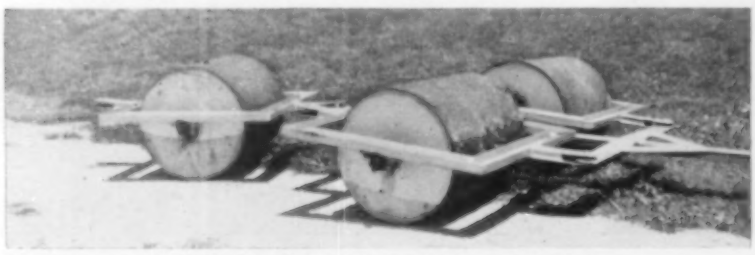
Our men also constructed the new office building in Mueller Park. It is brick and stone veneer over frame and contains a full basement with poured concrete walls. It includes air-conditioning and contains 1,600 square feet on each floor. This building results in an attractive headquarters for the Park District.

We will soon complete an 18-hole golf course combined with a family recreation park. Its facilities will include boating, fishing, hiking, tennis, skeet and trap shooting, picnicking, nature trails and a rifle and pistol range in addition to the new golf course. The park staff did the original topographic survey on the land and furnished a golf course architect with topographic and boundary maps. From these he prepared plans and specifications for the park and golf course. Using these plans and specifications, we did the clearing, grading, drainage, water lines, green and tee construction and other related work. For the heaviest grading we hired a contractor on an hourly basis.

A few years ago most of these same men built a nine-hole, par-3 golf course at the Decatur Municipal Airport. Golfers find this course attractive and keep it occupied most daylight hours. They pay only 50 cents a day.

Doing our daily maintenance chores, we find many money-saving ideas. One of them resulted in savings of thousands of dollars in the construction of golf greens. We purchased ten bushels of bent grass stolons at a total cost of $45 and planted them in narrow rows. As the grass produced runners and spread, we cut these runners and replanted the smaller ones into additional narrow rows. Watering and fertilizing followed. Within approximately two years, enough bent grass became available for the 18-hole golf course with some left for green repairs. The new greens average 6,600 square feet in area. At the recommended rate of ten bushels of stolons per 1,000 square feet, the greens demanded almost 1,200 bushels of stolons. If we could still have purchased the stolons for $4.50 per bushel, the cost would have reached $5,400 instead of the original $45 plus less than $1,000 for maintaining and reproducing the grass. We chopped the bent grass into stolons by cutting the bent sod as thin as possible with a power sod cutter, shaking the dirt off and running it through an ensilage cutter which discharged into a truck. This vehicle delivered the stolons to the site of the green construction and park department men spread them in place as specified.

It is our policy to roll early in the spring all areas mowed with gang mowers. While there is some evidence to indicate that compacted



These home-made rollers protect the lawns and gang mowers.

ground is not conducive to healthy grass, we believe rolling produces definite advantages. These include the following:

- **pushing frost-heaved tufts of grass down so the units will not mangle the heart and roots of the grass;**
- **preventing damage to the mowers caused by dirt, grit and stones in the heaved tufts of grass;**
- **leveling mole runs and any other irregularities which cause damage to expensive mower units.**

We first order hollow cylinders 24 inches in diameter from a steel fabricator. Our workmen place steel axle shafts in the cylinders and pour the assembly full of concrete. Welders then construct a frame which bands together three rollers. It includes bearings for smooth operation and a hitch to fit the one on the tractors.

We obtain shade trees for our 1,200 acres of park land from state nurseries at very little cost, or purchase them from a commercial nursery while the trees are quite small and inexpensive. We plant them in the park nurseries and nurture them while they grow into valuable and useful trees. Workmen speed the task of replanting by using a 12-inch power auger on the back of a Ferguson tractor to drill holes for the roots. A normal tree requires three holes drilled closely together in a triangular arrangement. The planters then remove a few shovels of dirt and the hole stands ready to receive the tree.

We alleviated the tough problem of ball-diamond maintenance to a great extent by applying calcium chloride twice during a normal playing season. The attracted moisture holds the dirt on the diamond and prevents it from blowing in the wind and annoying the neighbors. In addition we no longer find it necessary to replace the many truck loads of dirt which were formerly required every season.

The use of calcium chloride also prevents grass growth and keeps the diamond in better shape. An old Worthington tractor with front-wheel drive and rear-wheel steer drags the ball diamonds. The operator raises and lowers the drag hydraulically. When he completes one diamond, it is no chore to raise the drag and scoot to the next one. He follows a regular schedule of diamond dragging so that all the ball fields receive regular and equal care.

We construct our own bleacher seats by nailing 2-by-10-inch planks to old railroad ties firmly anchored in the ground. By using varying lengths of ties, we create a bleacher effect. These seats are economical and adequate. We also build picnic tables in our carpenter shop. Shop mechanics fabricate all the park bicycle racks by welding pipe and connectors together. Park flagpoles, which are our own design, feature a simple take-down arrangement for maintenance and repair.

Our balanced program of construction and maintenance results in an economical and effective park district. The purchase of much of our equipment resulted from money saved by careful and frugal planning. In addition, we are able to retain our skilled personnel throughout the entire year and do not find it necessary to train new men for the busy summer season. ◄◄

Changed Refuse Requires Better Fly-Ash Control

A change in the composition of refuse can produce a chain reaction in an incinerator. This happened at the plant located at Merrick, N. Y., operated by the Town of Hempstead. The problem—increased use of paper in the refuse created higher operating temperatures, requiring more cooling air, causing increased fly ash. More air was also needed to increase the burning rate. This added to the problem. The cyclone collectors originally installed simply were not large enough.

The problem was more than simple replacement, for the new collectors had to fit in a confined area within the plant.

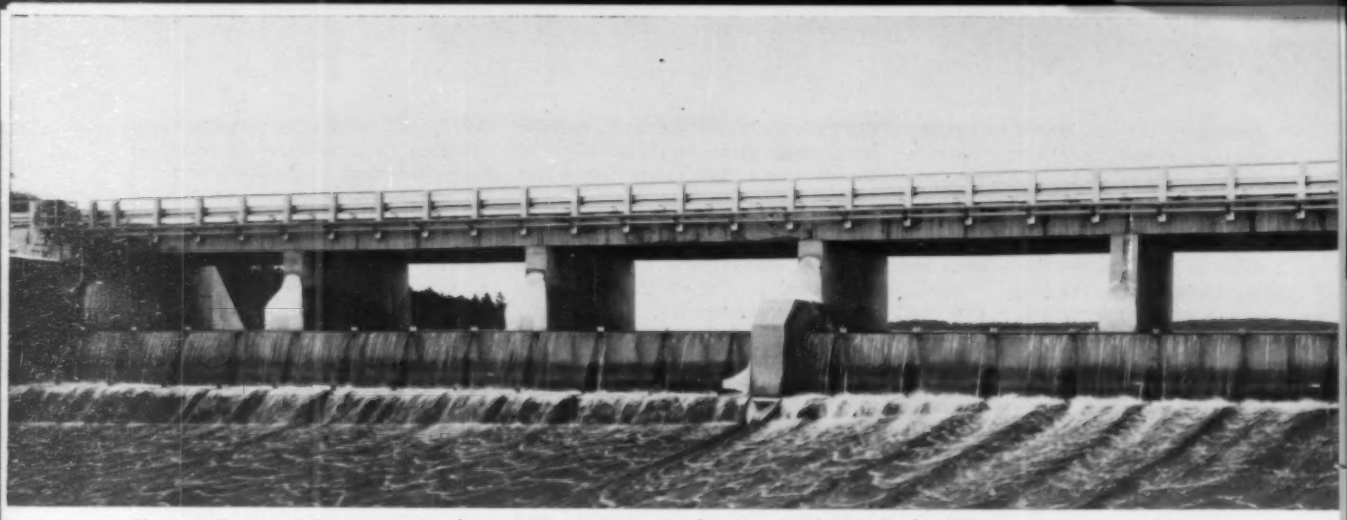
To obtain the necessary information for the design of new cyclone collectors, the engineers made a survey of dust-loading conditions at the discharge side of the waste-heat boilers.

Each of the plant's two waste-heat boilers receives hot gases from two Morse-Boulger circular furnaces of 180-ton capacity. From the samples the engineers were able to determine the amount of particulate matter in the gases.

John Wood improved cyclone collectors met the requirements of compactness and short-time delivery. The two units installed are of the involute type, differing from the more common type of collector having small diameter tubes and inlet vanes in that the air enters the tubes tangentially. Each entrance tube is 27 inches in diameter and each collector has 30 tubes. They are designed to take 150,000 cfm at 600°F.

With the fly-ash problem settled, larger blowers can now be installed to provide more air and increase burning capacity. Preliminary estimates indicate that with the new blowers plant capacity will run about 25% higher than the original planned volume. ◄◄

The larger-capacity cyclone fly-ash collectors fit into the same space provided for the original smaller units.



The installation of these gates by the York Water Company has increased capacity by 25%.

The proper application of bascule gates to the water-shortage problem can produce . . .

Big Results for Little Money

By **EDWIN MURPHY***

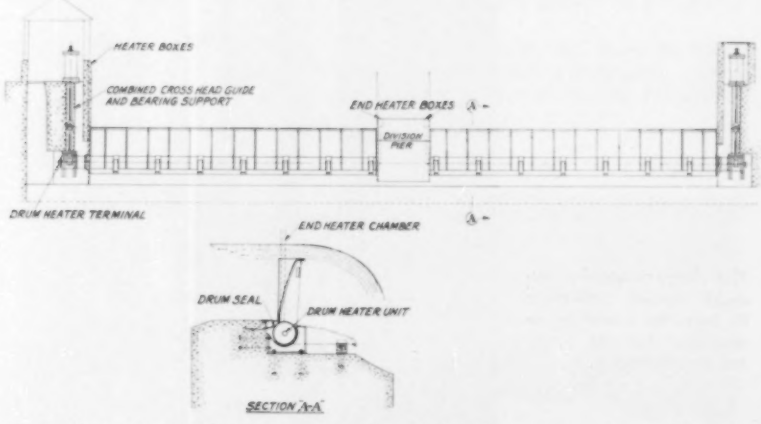
With the water-shortage problem becoming more acute and widespread, it becomes the responsibility of every water utility, whether private or public, to study the matter in the light of its own particular situation. The solution of course depends upon local conditions. One answer applicable to many situations is the elimination of waste at the source and in this connection bascule gates can play an important role.

Consider the simple case of insufficient storage. Many existing storage basins can be enlarged to add sizeable percentages of impounded water at nominal capital expense. New reservoirs may utilize these gates with automatic controls to allow the storage of water at a much higher level than would otherwise be permissible. Sizable impounding dams can be constructed in stream beds using an economical dam and controlled discharge through the gate.

In the case of well supplies drawing from aquifers supplied by surface waters for having outcrops in the immediate area, control of the stream level and holding back portions of flood run-off will replenish the ground water at an increased rate. The use of control gates in streams will also assist in maintaining higher ground-water levels needed to ward off salt-water intrusion in certain areas during dry seasons and periods of heavy demand.

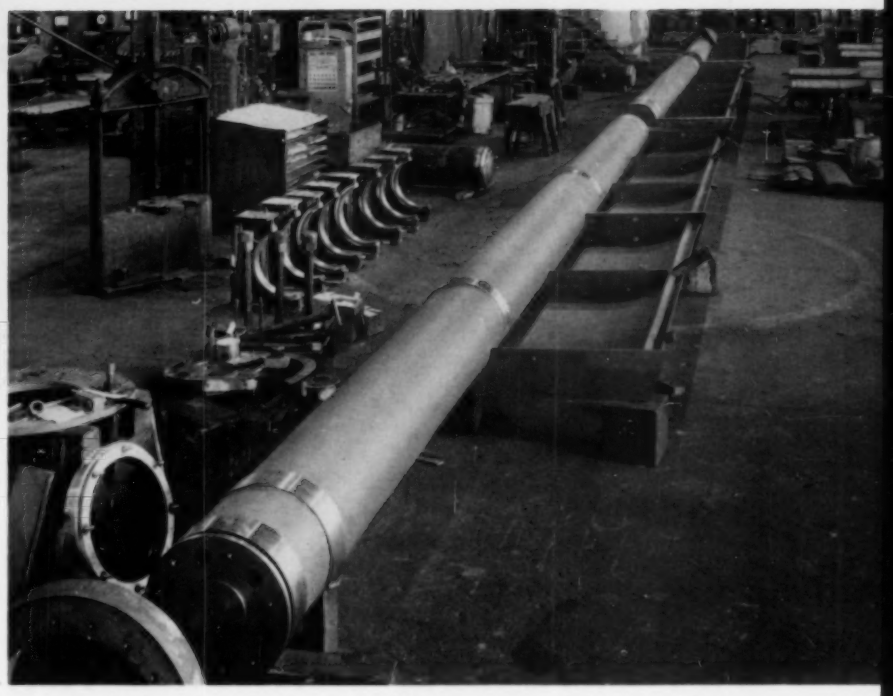
The bascule gate is a relatively simple device. The drawing shows a typical gate installation. It consists of a heavy pipe or torque tube running the length of the dam. A steel apron attached to the tube forms the barrier or dam. The torque tube is mounted in bearings anchored to the crest of the dam with one or both ends attached to the operating device.

Rotation of the torque tube through an arc of approximately 90 degrees raises the barrier from open to closed position. Section A-A of the drawing shows that when the gate is lowered it fits into the crest of the dam, forming no obstruction to the spillway crest. The gate can, if desired, be shaped to conform very



Typical bascule-gate installation showing hydraulic operators for each section and a view of the gate in open and closed positions.

* Mr. Murphy is with the Hydraulic Turbine Division, York, Pa., Works, Allis Chalmers Mfg. Co.



Fabrication of the Johnstown Water Co. gate nears completion at the plant where it is shown laid out as it will be at the dam site.

closely with the curvature of the spillway.

When it is installed with this feature, the gate presents no obstruction to the passage of flood water or floating debris when in the open position.

Either a mechanical or a hydraulic hoist rotates the torque tube to operate the gate. With automatic controls, it is preferable to use a hydraulic-type hoist. This type allows the gate to open automatically in an emergency even though power may be temporarily lost, an important feature since loss of power often occurs during severe storms and flash floods. The automatic control insures against flooding the upstream area of the dam.

Many municipal water systems include a storage reservoir for raw water. This usually consists of an impounding dam retaining run-off in a given water shed and a regulated discharge into a stream feeding the pumping station. Such reservoirs also serve as the suction pool of the pumping station. Water pumped from other streams may feed these impounding basins or storage pools.

Capacity Increase

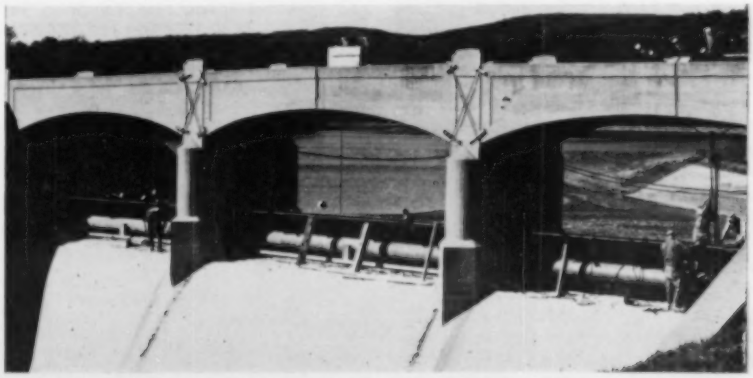
In most cases these storage ponds can be increased in capacity by raising the level of water in the lake above the dam. It does not require a large increase in water level to produce a large increase in stored-water volume for the natural slope of the sides of the basin provides a much larger surface area for each foot added to its elevation.

Reduce Waste

Floods are generally regarded as a complete loss. In addition to the damage they do along the stream, much of the water rushing over the spillway constitutes lost revenue to the water utility. The installation of a bascule gate on the spillway will convert a sizable percentage of this wasted water into revenue.

Flood-control gates make it possible to gain additional storage volume with no increase in upstream flood damage. In the initial design of a dam fed by a stream or by drainage from a given area, the spillway. When installed with this the expected flow when at the maximum permissible flood level. The bascule gate meets this condition for it fits right into the crest of the spillway.

When the gate is open, it presents no obstruction to free use of the entire spillway thereby maintaining full capacity. The real benefits accrue



At Johnstown, Pa., a single torque tube passing through the center piers operates all three gate sections. This prevented any reduction in spillway area.

after maximum flood stage has been reached.

As flood waters start to recede, automatic controls transmit the level of the lake surface into the gate-control mechanism. When incoming water becomes less than the capacity of spillway, the level of the reservoir begins to drop. This change of surface level, transmitted to the gate operating mechanism, causes the gate to move toward its closed position to restrict flow and bring the inflow and outflow into balance.

The controls keep positioning the gate until the lake surface reaches the level for which the controls are designed. At this point the gate is fully closed and the upstream level held at a point only slightly below the flood point. This results in the storage of a large volume of water which normally would go over the spillway. In cases where pumps supply water to the lake from other sources, the retained flood water reduces future pumping costs.

In 1910, the York Water Company of York, Pa., built an impounding basin covering 170 acres and containing 900,000,000 gallons of water. This was far in excess of peak needs for years to come. However, increased demand and community growth caused this reserve to become less impressive. During summer droughts in 1954 and 1955 the reserve supply became alarmingly low and in 1954 the company directors authorized the installation of bascule gates on the dam's spillway.

This installation consisted of two gates, each 4 feet high and 93 feet long. Each gate is controlled by a water-level sensing float and operated from one end by hydraulic oil pressure. Operation can be changed from float to straight manual control. Electric-motor-driven pumps and pressure tanks provide a continuous supply of oil under pressure to operate the gates with ample reserve supply so that gates can be operated through one cycle after loss of power.

Lake Larger

This installation increased the lake area to 220 acres and added 250,000,000 gallons to its storage capacity; the increase in storage capacity was accomplished without flooding upstream land not previously covered by water at flood level. Thus, at a very moderate cost, and with minimum changes in existing facilities, the York Water Co. increased storage capacity by better than 25%.

The Johnstown Water Co. (Pa.) faced a problem very similar to that of the York Water Co. Here a service bridge, built on piers centered on the spillway axis, spanned the spillway. The total width was about half of that at York and there was no room to locate the gate either upstream or downstream of the bridge. The space required for operating mechanism housings for three small gates installed between the existing piers would take up too much of the spillway area. After studying the location, the engineers decided that one continuous torque tube extended through holes drilled in the existing piers would serve the purpose. The torque tube also ran through a hole drilled in the bridge abutment on one end of the bridge.

An underground control house, built under the roadway, housed the pump, pressure and sump tanks and the operating cylinder and controls. Three sections of gate apron were fabricated to fit the spaces between the existing piers. This resulted in one gate operating in the space available and from a single control point. This installation increased the capacity of the reservoir by more than 8%.

Both of these installations were made with little or no interference in the normal operation of the plants and increased reserve water supply capacity with minimum investment. This increase in capacity did not involve any land damage or the purchase of new pumping equipment or installation of new pipe lines. The upstream water level was still below maximum flood level for which land had previously been acquired.

Such gates can also be used in new reservoirs to obtain the same advantages as gained by adding to existing ones. Making the installation during initial construction reduces the cost. Also, the crest of the spillway can be designed to use the best arrangement and all embedded parts can be anchored to and grouted into the structure at the time it is built. ◄◄

Circular Courthouse for Triangular Site

A circular courthouse design solved the puzzle of building arrangement caused by a small triangular site in Doylestown, Bucks County, Pa.

But this form created a new problem; unusually long spans (46 feet) were required for the radial girders to provide the clear, uninterrupted floor space needed for the various court rooms.

But Severud-Elstad-Krueger Associates, structural engineering consultants for Carroll, Grisdale & Van Alen, Architects, solved this secondary problem by designing the structural frame in steel.

The new county-courthouse facilities, located on a 2.75-acre site in the center of Doylestown, are composed of a seven-story, rectangular office building, and a five-story circular courthouse.

When the mandatory placement of the office building, on the east end of the lot, created a triangular ground area on the west side, a circular court building provided an ideal shape for the space.

The court building, which will provide 59,900 square feet of floor space, is scheduled for completion by mid-1962. It will be faced with red colonial brick and trimmed in granite. The courthouse structure will feature an extensive use of glass.

The courthouse building, an enterial present in the sewage, the the office building, and a public meeting room are being built at an estimated cost of $2,900,000, including site work. ◄◄

Imaginative design provided a dramatic solution to a difficult site problem in Doylestown.

High Loading Rates Save Money

. . . in your sewage purification plant and will do an excellent job if they are designed to biological principles

By R. L. SMITH
and H. C. LEIBEE*

If designed to the proposed 50-pound loading rate, the International Falls plant would have cost 30% more.

There is no purpose in reducing the loadings on the trickling filter used in a sewage-treatment plant. Such a reduction has in fact, the adverse effect of increasing substantially the cost of plants and making most industrial-waste pre-treatment plants excessively high.

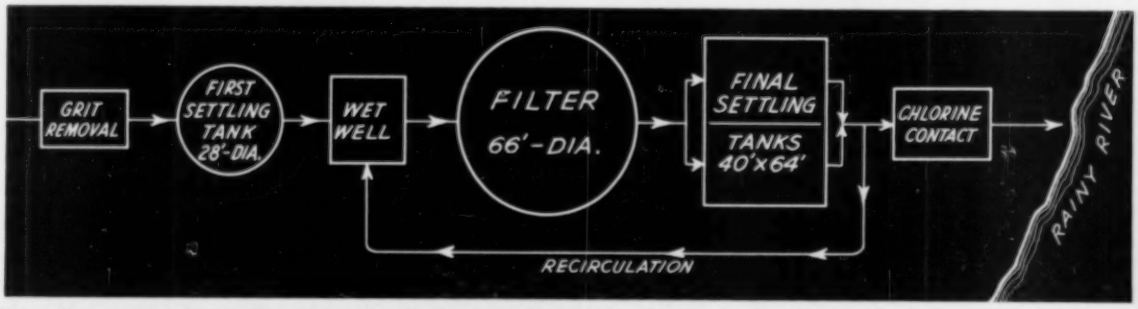
Specific cases indicate the plant construction costs at International Falls and Delano (Minn.) with equivalent populations of 15,000 and 3,000 respectively, would have increased 30% under reduced-loading design basis. For industrial wastes the percentage would be much greater.

Sewage treatment using biological filters has been standard in smaller communities for 60 years. This process withstands considerable abuse and operates at low cost. However, the last 30 years have seen radical change in the method of feeding microbial flora and we believe that a more complete understanding of the microbiology involved will aid in producing better results.

A filter is a structure that provides the maximum amount of surface for a unit volume; this surface serves as the attaching agent for a composite of bacteria, fungi, protozoa and worms. As this composite flora is aerobic in character, the air supply is as important as the food supply, which in this case is the organic material present in the sewage. This flora has a maximum capacity that is a product of the conditions provided in the filter: the amount of surface, the amount of organic material present in the sewage, the susceptibility of this organic material to oxygenation and the thickness of the film of sewage flowing over the flora. How the plant designer assesses these factors determines the success or failure of the biological filter.

The late Dr. Henrici of the University of Minnesota Bacteriology Department, in his study of stalk bacteria, found a logical explanation for the physical functioning of the filter flora. Presumably these bacteria attach themselves to solid surfaces. The growth of the stalk bacteria in large numbers creates a dense "microbial forest" that eventually prevents air from reaching the surface. This leads to a condition wherein anaerobic liquification dissolves the attaching element and causes the filter to "slough." Sufficient liquid must be present and

* R. L. Smith, St. Paul, Minn., is a consultant in the waste-engineering field. Mr. Leibee is engineering consultant for the Red Wing Sewer Pipe Corp., Red Wing, Minn.



This schematic drawing on the International Falls plant indicates the path of the sewage liquor.

sufficient velocity of flow provided to move the released pieces of flora out of the filter. The term "scouring" denotes this effect; however, it is inaccurate. It is *not* possible to wash the flora from the media by the use of excessive flows; the only effect of these excessive flows is that a large share of the liquid passes the flora without treatment.

Effective Surface

The effective surface means the growing surface that is available for an aerobic flora. The filter media providing the growing surface must be material that is fully resistant to the chemicals in sewage; the angle of incline must be such that the released flora can "float" out of the filter; the surfaces must be more than one-half inch apart because the flora are able to span a half-inch; and the structure should be such that a thin film of sewage will constantly coat all filter surfaces from top to bottom. Dr. H. O. Halvorson, head of the Department of Life Sciences at the University of Illinois, found that an application rate of less than one-eighth ounce of sewage per square inch per minute of filter surface (10 mgd per acre) would not supply sufficient liquid to float released flora out of the filter, provided that the normal rate was lower than this figure. When application rates exceeded three-eighths of an ounce per square inch of filter surface per minute (30 mgd per acre) he found that the flora would begin to deteriorate. Both Dr. Halvorson and Dr. K. L. Schulze of the Michigan State Sanitary Engineering Department determined that, assuming the hydraulic rate was sufficiently low, the percentage of removal remained constant up to loadings of 375 pounds of BOD per 1,000 cubic feet of media.

Distribution Rates

Prior to the early 1930's, the low-capacity filter was standard. This filter depended upon a premise that, in general, the feeding of the flora unit areas should occur only about 1% of the time, and that the filter should rest, during the balance. The use of equipment available at that time probably determined this standard. These filters operated successfully when hydraulic loadings ranged from two to four mgd per acre. For the preceding 30 years, almost everyone believed that these plants, with few exceptions, would not operate with loadings exceeding four mgd per acre. The exceptions to this rule, based upon more recent knowledge, might have depended on the use of larger sized media and lower momentary rates. Many forget that, for 30 years or more, application rates above four mgd per acre were not successful.

In the 1930's, two new methods of feeding the flora appeared. Dr. H. N. Jenks, an engineer, proposed to return the treated sewage to the filter repeatedly, using the same general type of sewage distribution. Dr. Halvorson proposed to feed the microbial flora at a very low hydraulic rate averaging 1½ drops per square inch of effective surface per minute (20 mgd per acre) and to recirculate only a sufficient volume of liquid to provide for continuous operation of the filter around the clock. Inventors developed two pieces of equipment to meet this last distribution qualifications. These consist of a motorized disc that covers the bed with a rain-like action and a multiple-armed distributor with centrifugal nozzles that produce comparable coverage of the top of the bed with small drops. Both Jenks and Halvorson proposed application rates of approximately 20 mgd per acre.

Confirmation

Other researchers confirmed the Halvorson data regarding the use of a loading of 110 pounds of BOD per 1,000 cubic feet of media. This loading remained a standard for the Upper Mississippi Group of states for about 20 years. Outside this area, other standards provided for about one-half this figure. This probably developed because Halvorson did his research work in this area and Jenks outside this territory. The effect of the two methods of treatment has been a tendency to leave the design of the distributors to the manufacturers who consider it a problem in mechanics, not biology. This results in a consequent increase in the number of plant failures. It cannot help but be obvious that flooding the microbial flora is unsound biology.

In recent months some states have taken the position that the recirculation of treated plant effluent has not paid its way and that they should discredit this method. They also believe that the filter loading rate should change from 110 pounds of BOD to 50 pounds of BOD per 1,000 cubic feet of media. Our research does not support this decision.

The following tabulation indicates distribution rates based upon the ppm of BOD in the raw sewage, using a requirement of 30% removal in the primary settling tank and a filter loading at the proposed new rate of 50 pounds of BOD per 1,000 cubic feet of media.

BOD of Raw Sewage ppm	Required Distribution Rate (without recirculation) mgd per acre
50	45
100	22.5
200	11.2
300	7.5
350	6.4
400	5.6

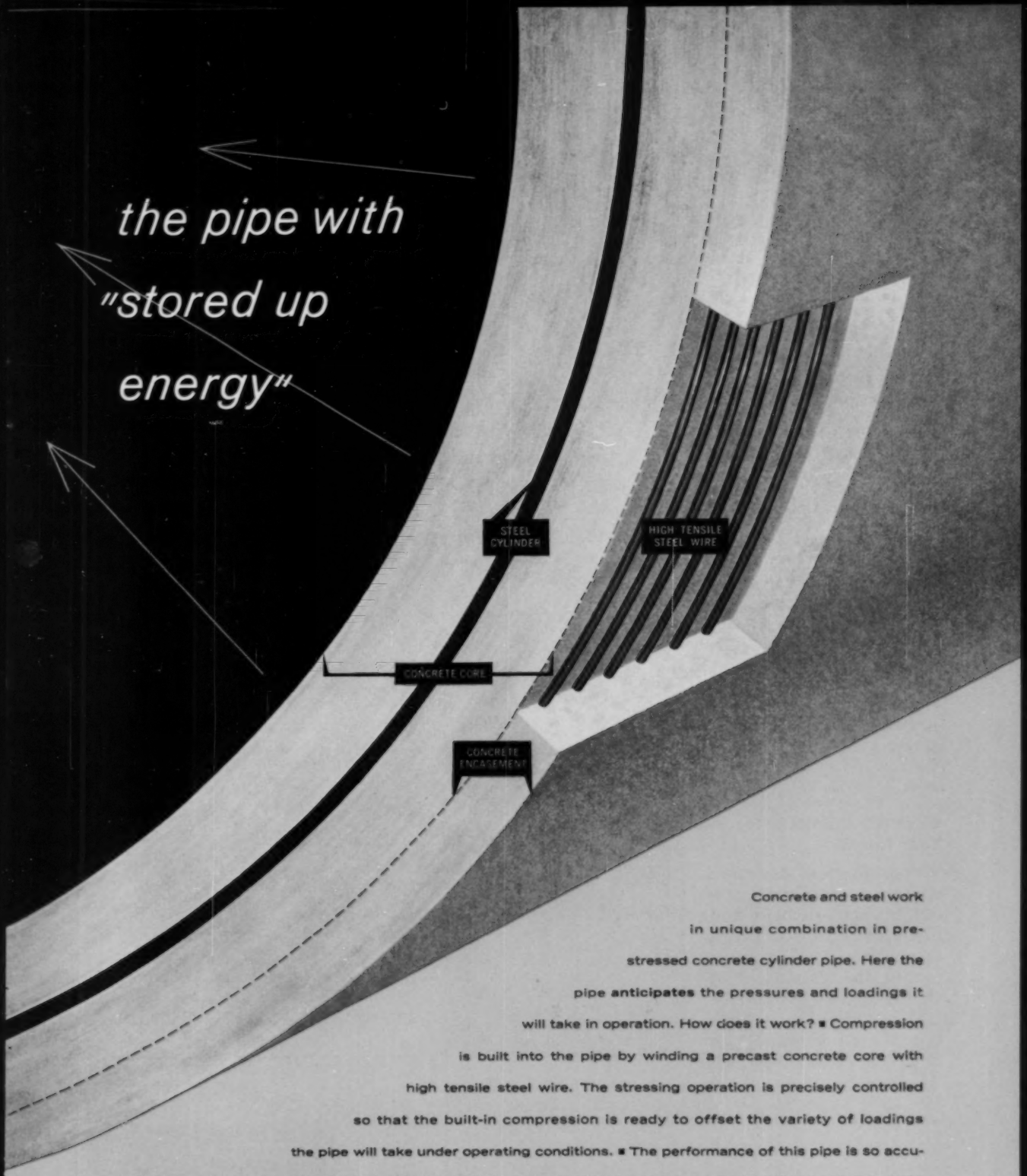
The BOD of normal waste approximates 350 ppm. The corresponding distribution rate (from the table) is 6.4 mgd, substantially less than the Halvorson and Jenks recommendations. These application rates which do not include recirculation are in the no-man's land of design—an area that has been taboo for many years. This emphasizes the need to specify adequate momentary rates to provide scouring velocities when using the new loading requirements. No basic patents exist which affect a choice of specification and the states should hesitate before proceeding without control over the feeding rates.

From the standpoint of loadings, the failures occurring when using loadings of one-third the actual capacity of the flora are a fault of the specifications regarding the momentary rate of application. To reduce the loading to one-eighth of the actual flora capacity is to produce a flora which is so light and thin as to impair its ability to withstand the shock of high strength waste. ◄◄

Crash Trucks Are Universal

Visitors to the recent American Airport Executives Conference watch a demonstration of an FWD crash truck. More than 500 persons attended the conference at Colorado Springs, Colo. Crash trucks like this are used by airports throughout the world.

the pipe with "stored up energy"



Concrete and steel work in unique combination in pre-stressed concrete cylinder pipe. Here the pipe **anticipates** the pressures and loadings it will take in operation. How does it work? ▪ Compression is built into the pipe by winding a precast concrete core with high tensile steel wire. The stressing operation is precisely controlled so that the built-in compression is ready to offset the variety of loadings the pipe will take under operating conditions. ▪ The performance of this pipe is so accurately predictable that concrete and steel are used to greatest advantage. ▪ Our customers have found that prestressed concrete cylinder pipe is economical for larger diameters, high pressures, or heavy loadings. ▪ American prestressed may be the pipe for your next pipeline project. Let us talk it over with you.

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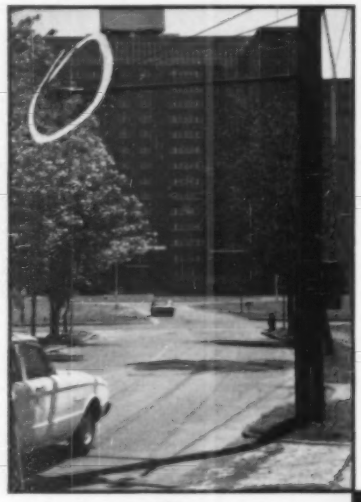
NEW DIRECTION/MOTION DETECTOR

CHEKAR® ultra-sonic vehicle detector recognizes difference between approaching and receding vehicles



The new CHEKAR® direction/motion detector (Type SVDM) is used with vehicle-actuated signals. It uses ultra-sonic (inaudible) sound waves to detect moving vehicles *approaching* actuated signals—at speeds as low as 4 mph—yet offers high immunity to *receding* vehicles which may enter the detection zone. You get maximum protection against false signal calls by departing vehicles.

LOW COST The Type SVDM vehicle detector is priced to compete with any overhead detector available.

SIMPLE INSTALLATION All components are mounted above ground. No special tools or meters required for installation or adjustment.

EASY MAINTENANCE Electronic circuits use only four tubes, all low-cost radio-TV types, obtainable anywhere. FCC licenses not required.

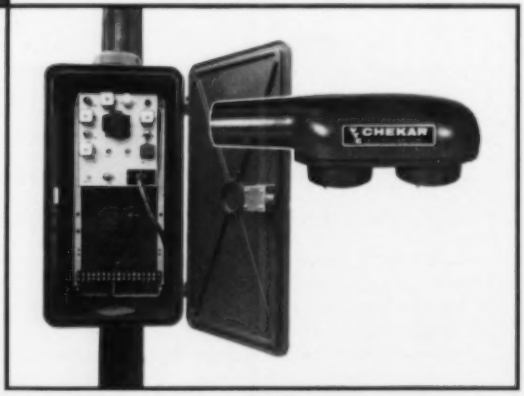
Mast-arm mounting provides detection for one or two adjacent traffic lanes. Vehicles stopped or parked in one lane do not interfere with detection of moving vehicles in other lane.

Side-fire mounting at roadside, usable in many locations, offers maximum installation economy. Provides detection up to two lanes out from curb—exact coverage depends on local conditions. (With side-fire detection, parking must be restricted near detector to avoid distorting ultra-sonic detection beam.)

CHEKAR Detectors for All Your Needs

Where motion detection does not meet your requirements — where you need vehicle detection down to a dead stop, or maximum resolution of closely-spaced vehicles—CHEKAR ultra-sonic *presence* detectors Types STD and SVDTare ideal. These performance-proven detectors, together with the new Type SVDM direction/motion detector, provide a selection that will meet practically any requirement. Ask for additional information.

Sensing unit has slip fitter for standard 2″ (2⅜″ O.D.) mast arm. Transceiver chassis mounts in weatherproof case, is plug-connected for easy installation and removal.



THE SOUND APPROACH TO VEHICLE DETECTION

VEHICLE TRAFFIC CONTROL DIVISION

GENERAL RAILWAY SIGNAL CO.

ROCHESTER 2, NEW YORK

3139

A patrolman goes into action, his patrol car equipped with a pair of cameras and flash equipment to collect traffic evidence.

This is the way the two cameras appear from the driver's seat; the officer can operate them without taking his eyes from the road.

One camera takes a picture showing a traffic violation; picture includes the fender-mounted clock-speedometer which documents the date and the time.

The Picture Proves It

In Denver, Colo., a selected traffic patrol car collects photographic evidence of traffic violations that is hard to refute.

The photographic system consists of two 35-mm cameras mounted on the dash. Both are spring-wound to advance the film automatically after each exposure. One of the cameras has a 75-mm f/3.8 telephoto lens for close-up identification of the violator's car. The other has a wide-angle 3.8-mm f/2.8 lens which gives a view of the scene from 30 feet away.

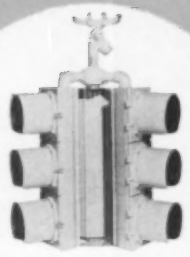
On the top of the car, between the siren and red blinker, is a 500-watt-second electronic flash unit to permit taking pictures at night. On the right front fender in a weatherproof housing s a clock-speedometer. The wide-angle lens mounted on the right-hand camera includes the dial on the negative and establishes the year, month, date, hour and speed of the patrol car.

A control-box panel is mounted under the patrol-car dash. When the patrolman throws the switch, a control light indicates that the electronic flash is ready to fire. By pressing a camera release button, the system goes into action and collects the evidence.

The second camera gets a close-up, with the license number of the violating car easily legible.

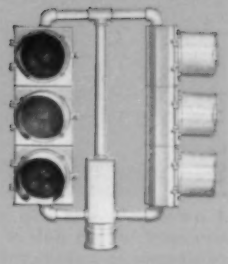
The system, known as Traffipax, is being marketed by Minneapolis-Honeywell. Capt. Leonard J. Johnson, Director of Traffic in Denver's Police Department, had been field-testing the equipment and finds it a valuable asset to traffic law enforcement. It has been used in Germany for many years. ◄◄

A Complete Line of Traffic Signals By ECONOLITE



Three way three section 8" Signal for Span Wire Mounting #3-E31G1G1A-4003A.

One way three section 12" signal with Elevator Plumbizer and Backplate #1-T31G2G2A-8002.

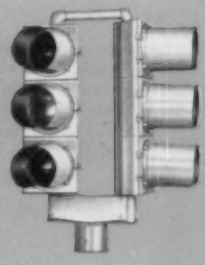


Two way three section 8" Signal for Post Top Mounting with Terminal Compartment #2-31G3G1A-3002.

12" Signal Adapter, "Red Lens" shown installed on 8" Signal. Adapter Complete, #TA11GGA.

ADVANTAGES

1. Complete assembly flexibility into rigid units.
2. Excellent signal indication and freedom from "sun phantom."
3. Maintenance ease, unsurpassed.
4. Shurlock fittings for positive alignment.
5. Precision die-cast interchangeable parts.



Two way three section 8" Signal for Horizontal Post Top Mounting with Terminal Compartment #2-E31G3G1A-8005.

12" Signal Adapter, "Green Arrow" shown installed on 8" Signal. Adapter Complete, #TA14GGA.

One way three section 8" Signal for Span Wire Mounting #1-E31G1G1A-4001A.

One way three section Combination Signal 12" Red 8" Amber and Green with Backplate for Adjustable Mast Arm Mounting #1-C36G1G2A-8011.

ECONOLITE CORPORATION

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Bus-Helicopter Proposed for Commuter Service

An admittedly "cloud-nine" proposal for commuter service was unfolded before the American Society of Planning Officials in Denver by Lt. Col. F. C. Goodwin, Air Commerce Division, Federal Aviation Agency.

He suggests that a "flying crane" be designed to pick up and transport a bus that had previously collected a load of commuters. The flying crane could then deliver it to the central business district, where it then could distribute the passengers to their destinations.

This helicopter-bus service, he argues, would give a flexibility to commuter travel that cannot be provided in any other way, freeing it from the rigidity and expense of fixed rights-of-ways.

They would have the added advantage of providing emergency means of ferrying people out of disaster areas and of providing transportation when heavy snows cripple ground travel. They also would provide a reserve supply of helicopter units needed by the military in case of war. It would permit the army to requisition at least part of them, having them on hand and in constructive use during peacetime. ◄◄

Big tip-powered helicopters, like this Hiller Model 1089 transport, should have no difficulty carrying commuter buses.

Parking Meters in Iowa

Parking meters are used in 73 of the 114 *cities* in Iowa. Only 3 of the 828 Iowa *towns*—Bellevue, Lake Mills, and Sumner—reported that they have parking meters. Lake Mills, the smallest municipality in Iowa using parking meters, had a 1950 population of 1,560; Bellevue and Sumner populations are close to 2,000.

All cities of more than 10,000 population have installed meters, with 25,414 in operation. The table below shows the number of parking meters in use in cities in five population groups:

Population	No. of Cities	With Meters	Without Meters	No. of Meters
50,000 plus	5	5	—	9,835
25,000-50,000	8	8	—	9,981
10,000-25,000	10	10	—	5,598
5,000-10,000	28	20	8	5,322*
2,000-5,000	63	30	33	5,547†
Total	114	73	41	36,283

* Data not given in five cities.
† Data not given in four cities.

According to a survey completed in 1950 by Vehicular Parking Ltd., 50 cities in Iowa had parking meters installed and in operation. THE AMERICAN CITY List of Parking Meter Installations (1954) reported 68 Iowa cities. There are now 73 metered cities.

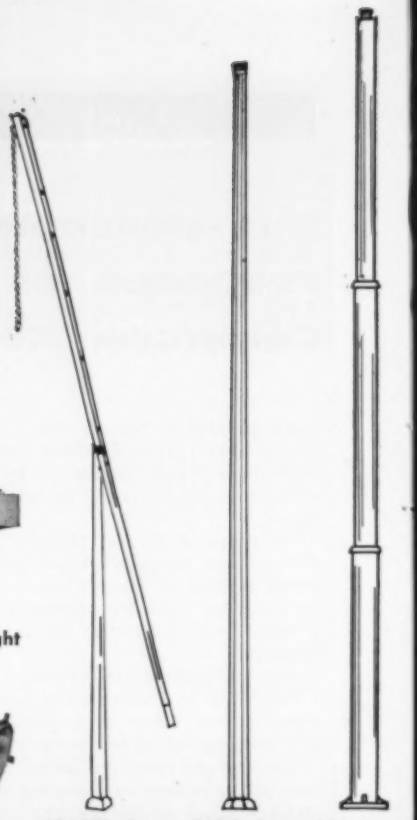
Virtually no correlation exists between the number of parking meters in operation and the population of metered cities. Des Moines, for example, has more than double the population of Davenport but has fewer parking meters. Sioux City reported the smallest number of meters (949) in operation, and Davenport the highest number (2,585) in cities of more than 50,000 population. Harlan has the largest number of meters (400) in the 2,000-5,000 population group and Sheldon has the smallest number (104).

LESLIE A. HOLLAND
Iowa League of Municipalities
Des Moines, Iowa

Asheville Unsnarls Its Traffic Kinks

To permit traffic to move more smoothly in Asheville, N. C., Captain Paul M. Dutcher, Traffic Department, reports that the city has:

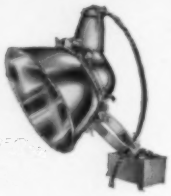
- **abolished curb parking on "through" streets in the central business district,**
- **increased the efficiency of the traffic-line marking program by acquiring an M-B, model 16, striper, able to apply two colors, and two lines in one application,**
- **completed analyses leading to the possible installation of equipment to coordinate traffic lights in the central business district.** ◄◄



199-D Series Hinged Pole

560 Series Rigid Pole

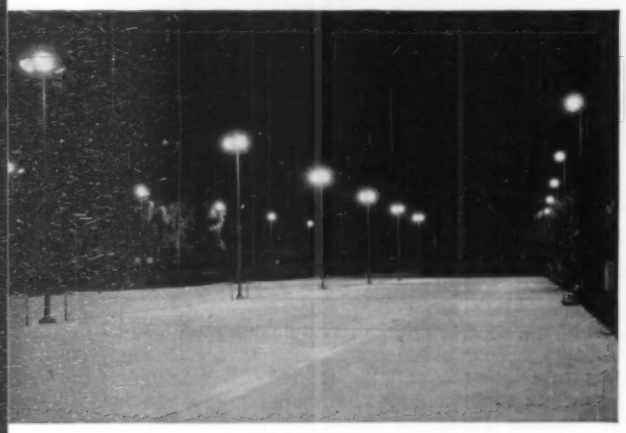
115 Series Rigid Pole



2000 Series Floodlight

3800 Series Floodlight

4200 Series Floodlight



Revere's wide line of fixtures lets you light sports areas the one best way for each job

You don't have to shop around for components required to light outdoor sports areas the one best way for each application. Just plan your work the way you know the job should be done, then call on your Revere wholesaler. Whatever outdoor lighting equipment your plans call for, he can supply it from Revere's complete line, without substituting components which may be less than best for the job.

Whether you need hinged or rigid poles . . . mercury, incandescent or fluorescent luminaires . . . floodlights, fixtures and fittings—Revere has them all, *structurally* matched for strength, balance and perfect fit; *design* matched for peak lighting efficiency and best appearance. Installation is fast, easy, trouble-free.

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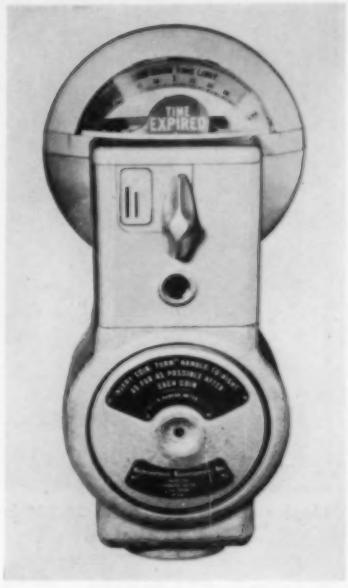
New York City Vandal-Proofs Its Parking Meters

Vandals who try to break into New York City's parking meters are due for a surprise. The Duncan Meter Company is supplying the city with 5,000 new burglar-proof meters that the Police Department's Safe and Loft Squad attacked with more tools than most vandals carry. The verdict: "A high degree of resistance." If the meters prove as strong as expected, New York will then buy more to replace the 60,000 now lining the streets.

The *New York Herald-Tribune* describes the city's parking meters as "little gold mines." They earn the city about $7,000,000 annually and pay for themselves in less than six months. However, the city loses some $300,000, or about 4% per year, to "parking meter burglars." The new meter is expected to plug this leak in revenue. ◄◄



One of the Duncan meters that the New York City Safe and Loft Squad found tough nuts to crack.

New Rochelle's Striping Policy

In marking city streets there is a need for both the small machine and the larger machine, depending on the road and traffic characteristics of the street system. It is important to minimize congestion when marking streets and therefore, on heavily travelled arteries in a central business district, the smaller machine is generally more practical.

The important objective is to keep the markings in good condition regardless of the method. Each community presents a problem to be resolved at the local level depending on such factors as staff, equipment, type of markings, budget.

I like the larger mechanized machine for long stretches of center lines and lane lines but prefer the smaller machine for marking crosswalks, stop lines, and parking bays. We have installed a cold-flow plastic material in marking stop lines and crosswalks (in the central business district) and have found that this will reduce the number of manhours, minimize traffic congestion and raise the efficiency of marking.

As a research objective, I suggest methods of permanently installing center lines and lane lines on those highways and roadways that are fixed in their usage. By permanent I mean some constructional device that can be built into the highways at the time of construction. This seems to me to be a worthwhile research program particularly in view of the fact that the federal government is accelerating its 41,000 mile interstate-highway program.

JAMES F. MAHONEY, *Traffic Lieutenant*
New Rochelle, N. Y.

New Transit Institute

The Institute for Rapid Transit, established to promote development, expansion and modernization of rapid transit in metropolitan areas, came into being recently through the efforts of certain transit operators and equipment manufacturers. The Institute for Rapid Transit replaces the Transit Research Corporation, formed in the early '30's by transit operators and manufacturers to develop the modern streetcar which itself is now passing from the transit scene.

TRC's contribution was the PCC (Presidents' Conference Committee) streetcar. Its quick-starting, quick-stopping characteristics are now being perpetuated in today's modern rapid-transit cars.

Headquarters of the Institute are being established in the Merchandise Mart in Chicago. The officers are: President—Walter J. McCarter, general manager of Chicago Transit Authority and former president of TRC; Vice-President and Treasurer—Donald C. Hyde, general manager, Cleveland Transit System; Executive Secretary—David Q. Gaul, formerly engineer for TRC.

Directors of the new organization are J. G. Inglis, general manager, Toronto (Canada) Transit Commission; T. J. McLernon, general manager, Metropolitan Transit Authority of Boston; C. D. Palmer, president, Pittsburgh Railways Company; and Mr. McCarter and Mr. Hyde.

Charter members are the Boston Transit Authority; the Chicago Transit Authority; the Cleveland Transit System; the Pittsburgh Railways Company; the Toronto Transit Commission; the General Electric Company of Schenectady, N. Y.; the General Steel Castings Corporation of Granite City, Ill.; the Pullman-Standard Car Manufacturing Company of Chicago; the St. Louis Car Company; the Westinghouse Electric Corporation of East Pittsburgh, Pa.; and the Westinghouse Air Brake Company of Wilmerding, Pa. ◄◄

Flagler Street glowing in 37,200-lumen fluorescent light.

First-Class Citywide Lighting

By **W. T. EEFTING**, Director
Department of Engineering

A special millage levied annually pays for Miami's street-lighting system, owned and operated by the Florida Power & Light Co. In the 1958-59 budget, the total figure was $622,752 for a millage of 0.759.

The operation of the present system hinges on close cooperation between the Department of Engineering—representing the city—and the power company. The Department acts as a clearing house for complaints and requests for improvements.

Close communication is maintained with the Traffic Engineering Division and the Police Division to improve conditions at specific locations. For example, it is sometimes necessary to increase light intensity at intersections where the records indicate a high incidence of night accidents. Also, troublesome areas of nocturnal criminal activity are more brilliantly lighted. Our street-lighting program is also carefully coordinated with the street-improvement program of the state, county, and municipalities.

As the poles and fixtures are owned by the Florida Power & Light Co., the company recommends size and type of new equipment and, if satisfactory, the recommendation is approved. Controls are built-in or photoelectric, whichever promises the better results.

The City of Miami covers 35 square land miles, has a population of 312,000, and contains 700 miles of improved streets and highways. Within these city limits, there is a total of 14,243 street lights. Of these, 5,863 are whiteway type and average 6,000 lumens. The remainder is residential type consisting of 4,000-lumen and 2,500-lumen lamps.

The incandescent, mercury-vapor and fluorescent fixtures used in lighting the city of Miami are those manufactured by General Electric, Joslyn, Westinghouse or Line Material. The steel poles are those manufactured by Kerrigan or Union Metal Mfg. Co. We are starting to use prestressed concrete standards furnished by Hughes Supply Co. of Orlando and manufactured by Dura-Stress, Inc., Leesburg, Florida.

In the past five years, our street-lighting system has been greatly improved due in part to an arterial program of the State Road Department. Dixie Highway, 27th Avenue, 7th Avenue, and 54th Street are now lighted to the recognized standard set by the Illuminating Engineering Society (I.E.S.).

Thirty-five miles of newly paved streets have to date been relighted with 10,000-lumen incandescent, 20,000-lumen mercury-vapor, 35,000-lumen mercury-vapor, or 37,200-lumen fluorescent lights. The 37,200-

(Continued on page 129)

Lighting standards on 27th Avenue, the main artery from the northern part of Miami to U. S. Highway 1 (Dixie Highway).

ON - STREET

OR

OFF - STREET

PARK-O-METER PRODUCES PROFIT

Whether your city has on-street or off-street parking problems, Park-O-Meter can be utilized to produce profits.

Park-O-Meters are automatic and accurate. They can be adjusted *on the site* for time, rate and coin changes, thereby eliminating costly shop maintenance and overhead.

Park-O-Meter parts are precisely engineered and skillfully built of finest quality brass, copper and stainless steel. They pay for themselves quickly and continuously. Let a Park-O-Meter parking expert show you how you can have a profitable parking meter system.

CLIP THIS COUPON

_____I would like to have more information.

_____Please have a Park-O-Meter representative call.

Name_____Title_____

City _____

State _____

P O M

MAGEE-HALE PARK-O-METER COMPANY

3909 Willow Springs Road • Oklahoma City, Oklahoma

Any Value Analysis inevitably hands the job to . . . . . NEW SYLVANIA 'BANNER' MERCURY LAMPS

because only Sylvania offers all these advantages:

1. Longer life—now extended from 9,000 to 12,000 hours (that's about 3 years of continuous service in a 2-shift plant!), thanks to new trimetallic electrodes.

2. More light—approximately 2 to 3 times the light of incandescents on the same power! You get more light output initially, higher maintained light, too.

3. Ruggedized construction. Banner lamps stand up to fiercest punishment. From hard glass shell to solidly welded, multiple-supported innards, they shake off shock, vibration, weather.

4. Life Recording Base—unusual feature saves precious time, annoying paper work by letting you scratch installation date in code right on the base of the lamp.

5. Certified Performance Policy—guarantees that: "Banner Mercury Lamps may be returned to the supplier for full exchange if they fail in less than 1000 burning hours, and thereafter (up to 5000 hours) for pro-rata exchange, in accordance with a pro-rata exchange value table set forth clearly in the policy form."

PLUS Lowest TCL (Total Cost of Lighting), which means cost of lamps plus power plus maintenance. Sylvania assures you of lower costs all the way!

Lighting Division, Sylvania Electric Products Inc., Dept. 63, 60 Boston St., Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd., Montreal.

SYLVANIA

SUBSIDIARY OF
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

(Continued from page 126)

lumen fluorescent fixtures have re-lighted East and West Flagler Street, the main street of downtown Miami. Sixty 20,000-lumen lights now illuminate the Miami side of the McArthur Causeway connecting Miami and Miami Beach.

N. W. 7th Street from 12th Avenue to LeJeune Road has been widened, resurfaced and relighted. This artery leads to Miami's famous Orange Bowl and to the International Airport. On football nights this street is jammed with traffic. Lighting consists of 10,000-lumen incandescent lights producing 1.25 footcandles mounted 25 feet high on steel poles.

Another important project was the re-lighting of N. W. and S. W. 27th Avenue from Miami's northern limits to South Dixie Highway. This is the main traffic artery leading to the western part of Miami from the north. It bypasses the downtown business section and rejoins U. S. #1 leading to Key West. The 10,000-lumen lights, two per pole, mounted 28 feet above the pavement in the center of the traffic stream conforms to the shape of the traffic islands. The steel poles are spaced 85 feet apart, with the bracket extending eight feet toward the center line of each lane, providing 1.25 footcandles.

The beautiful new Julia Tuttle Causeway, a three-mile link of our East-West Expressway (part of the federal interstate system), joining Miami and Miami Beach, was opened to traffic in December 1959. The Causeway is lighted with 322 20,000-lumen mercury-vapor lights which are mounted 30 feet above the roadway.

Biscayne Boulevard (U. S. #1), the main entrance from the North, was recently relighted with 324 35,000-lumen mercury-vapor lights with an intensity of 2 footcandles.

The city has divided the street-light problem into three areas of responsibility, residential, business, and thoroughfares or main arteries.

In the past, much has been done for arterials and business districts. Approximately half of these commercial streets have been brought up to the minimum standards. Obviously the big areas remaining for improvement are the residential.

A timely project will enable millions of television viewers across the nation to get a better look at the famous Orange Bowl Parade this New Year's Eve. This is the relighting of eight blocks of Biscayne Boulevard, an arterial highway, U. S. #1, along Biscayne Bay, through downtown Miami. This portion of the Boulevard widens to eight lanes.

Here's where we are and where we are going:

On July 1, 1960—86,032,500 lumens
Added in approved budget 1960-61—27,840,000 lumens
Estimated lumens to light the city completely—170,000,000 lumens.

We are gradually, but surely, becoming a modern, well lighted municipality. ◄◄

A Subdivision Lights Itself

A 300-home subdivision near South Bend, Ind., is lighted by a post light in each front yard. The lights are wired to the home current and have an electric eye which turns them on at sunset and off at sunrise.

In addition to taking the place of street lighting, the post lights are said to have a "prestige" look that speeds sales.

"All those lighted post lanterns in the Swanson Development make an impressive sight," reports Carl Hass, division residential sales supervisor for Indiana and Michigan Electric Co., Ft. Wayne, Ind.

Hass suggested the idea to Harry Swanson of Swanson Homes and Thomas Industries Inc., Louisville, Ky., manufacturer of the Moe Light electric-eye post and lantern. The lantern costs $30 and the cost of installing the post lights and connecting them by underground cable to the entrance panel of the house wiring system, is about $15 each, which the developer pays to the electrical contractor. Incidentally the post has an electrical outlet which can be used to plug in Christmas tree lights or electric yard tools.

E. Allen Lea, sales manager for the Moe Light Division of Thomas Industries reports that other utilities pushing the electric-eye post and lantern are Seattle City Lighting, Seattle; Gulf States Utilities Co., Beaumont, Texas; Duquesne Light and Power Co., Pittsburgh; Pacific Power and Light Co., Portland, Ore.; and Montana Power Co., Inc., Billings. ◄◄

Front-yard street lights near South Bend, Ind.

Colorfully mounted new lighting brightens downtown Wyandotte.

Wyandotte's Bright-Dim Downtown Lighting

By **CARL BUFE**
Superintendent
Municipal Service Commission*

Recently Wyandotte, Mich., decided that it needed a downtown face-lifting and lighting was the tool that the city used to make the improvement.

On a ten-block section along Biddle Avenue, the ornamental street lights underwent substantial change. Double-pendant filament lights came down. The 26-foot poles took on new color—each with one of nine different pastel shades on the base and white enamel at the top 20 feet.

On each pole city crews placed two General Electric mercury-vapor luminaires, each painted the same pastel as the pole base. An eight-foot bracket supports an M-1000 luminaire with a color-corrected 1,000-watt mercury-vapor lamp; a four-foot lower bracket supports an M-400 luminaire with a 400-watt color-corrected mercury-vapor lamp. There are 72 poles, spaced 120 feet apart on both sides of the avenue.

Each of the poles formerly contained two 500-watt filament units. Installation of the new mercury units has increased the total power requirement by only 10% while producing 175% more light.

The two luminaires on each pole give a money-saving flexibility to the lighting that has characterized street lighting in this city for many years. During the evening, and until midnight, both lights are in operation, giving the attention-commanding illumination to the downtown area that is needed to help keep the business district economically strong. After midnight, we turn off the 1,000-watt light, leaving the 400-watt unit burning. This gives light enough for police and safety purposes and reduces our power load substantially. We used the same policy when we had the pendant lighting in the downtown area, turning off part of the lighting after midnight when there was no longer a need for the brighter lighting.

Residential Lighting

The downtown lighting program is only part of the overall street-lighting rehabilitation. In the residential area, we are supplying 3,300 new street lights carrying 6,000-lumen incandescent lamps, GE model 101 VR. We are spacing these at an average interval of 200 feet and a maximum of 250 feet. Each light is mounted 26 feet above the ground, carried on a Western red cedar pole with a 16-foot Quigley Machine Products arm that holds the light over the center of the street.

We make something of a point of seeing that these lights are aligned perfectly in the center of the street, and do not believe in "swagger" in our street-lighting installation. Each of the 16-foot arms has a two-foot adjustable collar so that we can make the alignment and give the street a neat sense of order that adds to its attractiveness.

Earnings from the electric utility are financing the entire $600,000 street-lighting program. The utilities also provide an additional $150,000 per year to operate and maintain the street-lighting system. This is in lieu of tax payments. ◄◄

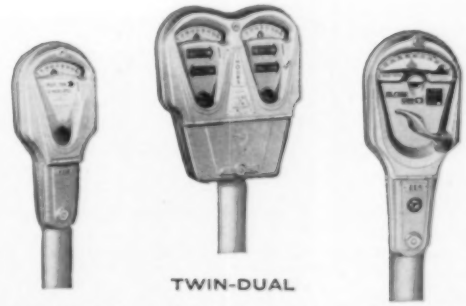
* Wyandotte's Municipal Service Commission operates the city's municipally owned power plant, electric distribution system and water works. It functions as an independent self-financing board whose policy-making members are appointed by the mayor and council.

Lancaster (Pa.) Traffic Engineer Einar Hansen Says:

Rockwell Twin-Duals are Tops!

Installed seven months ago during the worst winter in Lancaster's history, Rockwell Dual parking meters have functioned remarkably well, according to Traffic Engineer Einar Hansen. His latest tests, excluding foreign matter inserted into meters, show these meters operating at an average of 98.4% of efficiency. Mr. Hansen uses two methods in a continuous check of meter accuracy . . . a daily report of malfunctions and a monthly test with coins actually inserted into each meter. Dual automatic meters proved their dependability under the most severe weather conditions.

Many other cities are discovering the durability and efficiency of Dual parking meters. Stainless steel working parts resist wear and stop corrosion; tamper-proof design rejects paper clips and other foreign objects. Learn how the Twin-Dual method of street-marking can help you accommodate more cars, while keeping traffic flowing smoothly. Write for a free descriptive booklet to: Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.



AUTOMATIC TWIN-DUAL MANUAL

DUAL PARKING METERS
another fine product by
ROCKWELL

Millerbernd
Elite standards
No other design can do quite as much for your city!
Just look at it and you can see why. Note the modern, clean line from base to Luminaire . . . the graceful, classic curve of the mast arm. Here is functional design that will stay modern . . . design that will be an outstanding feature of your city for years to come.
No other single city improvement of comparable cost has as widespread an effect in stimulating community pride . . . in giving a progressive appearance to your city . . . as re-lighting with Millerbernd Elite Standards.
Functional Elite design gives you a dividend of durability, too. Tapered, integral welded steel base provides a sturdy mounting and armor plate protection against car bumpers and street maintenance equipment.
Millerbernd Standards are built of high-strength steel, available in all standard heights and mast arm lengths. Available for fluorescents, too.
Modernize for maximum effect, with Millerbernd Elite Standards.
WRITE FOR BOOKLET OTA
Millerbernd
lighting standards
MILLERBERND MFG. CO.
WINSTED, MINNESOTA

The City Tells Its Story

Edited by PAN DODD EIMON

Municipal Public Relations

Albuquerque's Management Analysis Office Handles the City's Public Relations

Albuquerque, N. M., traces its beginnings to the year 1706 which makes it one of the older cities of the United States. There is nothing antique, however, about its use of one of the newer administrative tools of U. S. cities: municipal public relations. The City of Albuquerque established in September 1960 a Management Analysis Office responsible for a continuing program of comprehensive public information.

When the office was set up, City Manager Edmund L. Engel told citizens that the program was intended "to promote an understanding of the municipal government, its purposes and function." Since "understanding is achieved through knowledge," the manager went on, the MPR office's basic work "is to help make available more and accurate information about city laws, policies, goals, activities, projects, and problems."

Manager Engel hopes that, in this way, "support of and confidence in the municipal government can be furthered and complaints and criticisms can be alleviated."

The Albuquerque city administration divided its public relations needs into two areas, internal and external. Of the former, the administration said, "There is a need for good relations among divisions of the city organization as well as among individual employees. Understanding of the operations of the municipal government by its officials and employees can help promote loyalty, efficiency, and acceptance of responsibility. A free flow of information within the organization is needed."

The management analysis pointed out these specific internal needs:

1. Written announcements about plans of the manager, for circulation to supervisors and employees.

2. Instruction and assistance in working with the public. This includes the production and distribution of a manual on handling complaints, and discussion with groups and individual officials regarding new information policies and projects.

3. Employee incentive and awards program.

Meeting these needs was to be a primary job for the public relations office.

External Goals

Albuquerque has been equally clear about the goals of its external public relations program. The objective, according to the city manager, is "to make available to the public accurate and timely information." The MPR office does this by:

1. Assisting professional news persons in securing facts and ideas for articles about the municipal government.

2. Preparing news articles and features for the press, radio, and television, particularly in those areas now largely ignored by news representatives.

3. Publication of a periodic newsletter for general distribution.

4. Preparation and distribution of special reports and publications, such as illustrative material to be used in public hearings and ordinances of general interest.

5. Submission of articles on city activities to municipal publications to promote prestige of the city and the interchange of ideas between the City of Albuquerque and other municipalities.

6. Improving reports made by various units of the city government "with the aim of providing better information" to be passed on to the public through annual and special reports and the newsletter.

The city manager reports

Calculation of Population Increase by Area Shows East Part of Heights Grows Five Fold

Albuquerque's newsletter is the basic tool in the public-relations program.

The newsletter was started the same month the PR office began its work. Named "The City Manager Reports," the newsletter replaces "Albuquerque Plan," a monthly publication of the city planning office since 1956. This "parent" publication covered planning and zoning primarily. But, as Management Analyst Jack Gill points out, "it was a widely circulated and read publication . . . and instilled an interest in such a publication as well as demonstrating the need for such a service."

The newsletter, Mr. Gill says, "is not intended to compete with regular news media but . . . covers subjects receiving only superficial treatment by professional newsmen for various reasons including lack of time, space, and understanding."

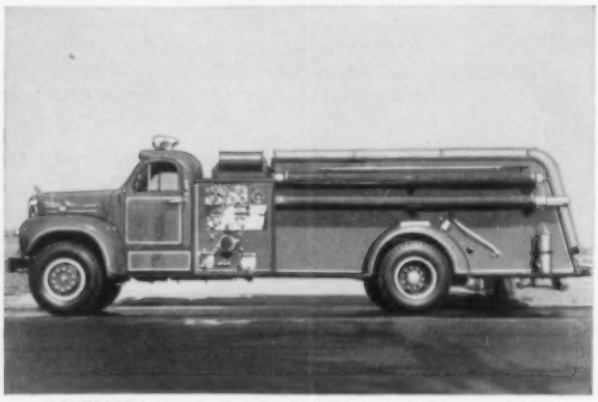
A sample newsletter contains three 8½" x 11" sheets stapled together, multilithed on both sides to provide six pages of city news. A special masthead, in two colors, is carried on page one. Also on page

(Continued on page 137)

THROUGHOUT CANADA THEY AGREE...

MACKS MEET ANY FIRE PROTECTION CHALLENGE!

TORONTO uses triple combination Mack pumpers like this recently delivered cab-forward model. Also about to be commissioned is a new aerial with a 100′ ladder.



MONTREAL keeps its fire department at top efficiency with a continuous modernization program. Mack 1050 Imp. gal. pumper shown is a recent addition.

DORVAL, a fast-growing Quebec community, recently added this Mack 1050 Imp. gal. pumper with 400 gal. tank and 35' 3 section ladders.

EDMONTON'S modern city hall forms backdrop for four of its modern Mack cab-forward pumpers. These are of 1050 Imp. gal. capacity with 400 Imp. gal. booster tanks.

WINNIPEG displays its new Mack 1050 Imp. gal. triple combination pumpers and Mack aerial featuring 100' ladder.

HAMILTON commissions Mack fire apparatus to replace its older equipment. Conventional model pumper shown recently took its place in the department.

From Quebec to the Northwest Territories . . . in cities large and small, when it comes to picking fire apparatus the answer is the same—Macks! When it comes to protecting lives and property, "second best" isn't good enough. That's why fire departments everywhere depend on Macks.

Because Mack is the only apparatus manufacturer to build all major chassis components, only Mack can custom build apparatus best fitted to your needs. Conventional or cab-forward design; with the transmissions and gear ratios exactly matched to the job you want done; with generous locker space, and with all the extras needed to cope with any fire fighting problem.

When the fire protection needs of your area demand better-built, better-designed apparatus, call on Mack. Find out why Mack apparatus is known everywhere as the best performing, most dependable equipment of its kind in the world today. Mack Fire Apparatus, Allentown, Pennsylvania. Mack Trucks of Canada, Ltd., Toronto, Ontario.

8344

MACK

FIRST NAME FOR

FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM...SQUAD AND HOSE WAGONS...AERIALS 65' to 146'...COMBINATION LADDER TRUCKS

THE PLUS FEATURES ...THAT SUBTRACT FROM YOUR COST !

Large Capacity
28 - 32 - 36 Cu. Yds.

Maneuverability
(Short Turning Radius)

Reach-ability
No Container Jockeying

Low Overhead Clearance

A New Container System — PAK-MOR's Handi-Lift teams with the Lo Boye's proven performance and gives you a Trailer Load at lower operating costs!!

Lo Boye Trailers have proven their big load abilities on commercial and residential routes. Now you have the plus of the Handi-Lift Container System with a reachability of six foot. All this adds up to bigger profits for you! Find out how you can do more—in shorter time — with a lower initial equipment investment . . . We'll be glad to show you how this combination can make money for you. . . . Write for details!

SANITATION FOR THE NATION

PAK-MOR
MANUFACTURING COMPANY

1123 S. E. MILITARY DRIVE PO BOX 14147 SAN ANTONIO, TEXAS

(Continued from page 133)

one: a lead story and an outline of the contents of the edition.

The newsletter goes to 2,200 persons. Response to "The City Manager Reports" has been "excellent."

Indicative of the clear journalistic style of the newsletter and of its informative and persuasive qualities is this article. Bannered, "Operating Municipal Government Is a Bargain for the Taxpayer," here's what it tells Albuquerque citizens.

"Operating the municipal government this fiscal year is costing $13,497,803.

"That's a lot of money all in one bundle, but the cost to the individual is only about $68. And for that $68 residents receive many services — often taken for granted — including the following:

"The street a resident drives home on was designed and paved under city supervision. Street lights, traffic control signs and signals, and street name signs were installed by the city.

"That run-down neighborhood a resident may drive past on his way home is being rehabilitated through city efforts. Also on his way home a resident may pass a park or recreation area maintained by the city government. There also are cultural and educational facilities developed by the city.

"The resident's neighborhood was designed under supervision of the city and integrated with other land uses in the community under the municipal zoning and planning standards.

"The street in front of his house is cleaned and repaired by the city. The house itself was built under regulations that insure that it is structurally sound.

"The house is served with water, sewer, and refuse collection.

"Life and property is protected by police and firemen made available by the city.

"These are part of the bargain residents receive for their $68 a year."

Clean-Up Drive

Releases from the Albuquerque PR desk are carefully created. This spring's clean-up drive was an occasion for sound PR planning and for newsworthy releases. This one, for March 24, 1961, went to 25 radio and television stations and newspapers in the Albuquerque area.

Headlined, "Value of Clean-Up Drive Is Cited by Sanitarian," the article listed benefits to property owners and the city from the drive.

The news release contained news. The activities planned, and listed in the release, also demonstrated an imaginative approach to citizen participation in clean up.

Albuquerque's traffic code is being published for wide distribution according to the management analyst. It will be in booklet form and so arranged that supplemental sheets can be added as the code is amended.

The MPR office has prepared a booklet intended to help negotiations for airport improvements. And, to smooth the way for city crews which will drill new water wells in one neighborhood, special notices have been sent to the 300 householders there.

The city does not forget newcomers. They get a letter of welcome from city officials, a list of key city telephone numbers, and a map showing the location of city government offices. This material is distributed to newcomers by the Welcome Wagon organization.

For samples of the newsletter, a news release, or the other Albuquerque publications write to: Management Analysis Department, Box 1293, Albuquerque, N. M. ◄◄

W&T LIME SLAKER SAVES YOU • HIDDEN WATER COSTS

Now you can stop paying freight on water. The W&T Paste-type Lime Slaker lets you buy unslaked lime—lets you slake it in your own plant completely, continuously, conveniently.

Wallace & Tiernan's Lime Slaker works with a constant paste slurry, controlled by a torque-actuated water valve. Slaking is complete in 5 minutes, water to lime ratio only 2:1. And the W&T Slaker needs no pre-heating, no insulation. You get a smaller, more compact slaker. The 1000 lb./hr. model occupies less than 6 ft. x 2 ft. of floor space; the 8000 lb./hr. model, less than 46 sq. ft.

Many other fine points too. There's no splash or splatter. Grit removal is completely automatic . . . lime wastage nil.

With the W&T Lime Slaker, you slake lime in your own plant . . . save on freight.

Write for information, Dept. M-58.00.

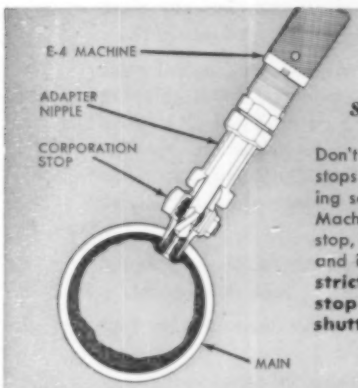
WALLACE & TIERNAN INC.
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

CONNECT SERVICES THE EASY WAY!

MUELLER® E-4 drilling machine

SPECIFICATIONS
Drills from ¼" through 1"
Boring bar travel — 9⅜"
500 p.s.i. at 100°F.
250°F. at 375 p.s.i.
Now furnished in fitted, steel carrying case.

Service lines are easily and quickly connected, under pressure, to any type of main — cast iron, steel, asbestos-cement, cement-lined or concrete — with a Mueller E-4 Machine. The simple, rugged design of the E-4 Machine and the great variety of drills and adapters available make it an extremely useful water works tool. Write for complete information.



clean corporation stops under pressure!

Don't abandon clogged corporation stops when cleaning mains and replacing service lines. Simply attach the E-4 Machine to the outlet of the installed stop, open stop, and drill out all deposits and incrustations as shown. **Full unrestricted flow of the corporation stop is quickly restored without shutting off the main.**

Just follow these simple steps:

1. Bolt a Mueller Service Clamp to main in desired position.
2. Install a Mueller Corporation Stop in clamp and open stop.
3. Attach E-4 Machine directly to outlet of corporation stop by using adapter nipple.
4. Advance drill through both open stop and clamp and drill into main.
5. Withdraw drill and close corporation stop.
6. Remove "E-4" and attach service piping to outlet of stop.

MUELLER CO. SINCE 1857 SERVING the Water and Gas Industries QUALITY

MUELLER CO.
DECATUR, ILL.

Factories at: Decatur, Chattanooga, Los Angeles; In Canada: Mueller, Limited, Sarnia, Ontario

(Continued from page 103)

dictions and current refuse, all parties agreed to the construction of three 500-ton-per-day units which would limit the haul to five miles from any part of the county except the sparsely settled western portion. Future plans include a fourth incinerator or a sanitary landfill as this area develops.

Incinerator Plant No. 1, located in Chester Township in the south central sector of the county, cost $1,750,000 exclusive of its 78-acre site. Plant No. 2 in Folcroft Township in the southeastern section cost $100,000 more than the first. It includes a wet-bottom sedimentation chamber which uses the effluent from a sewage-purification plant. Plant No. 3 in Marple Township will serve customers from its east-central location. Upon completion early in 1962, its construction cost will total in excess of $2,000,000. It is similar to Plant No. 2 but contains longer crane runways and a Nichols wet scrub system in the sedimentation chamber to reduce fly-ash emission to 0.7 lb. per 1,000 cubic feet of flue gas corrected to 60°F. This stack is 250 feet high and 14 feet in internal diameter.

The county operates the incinerators as a service without special charges not only to the governmental units but to all haulers who meet certain conditions imposed by the officially adopted regulations. These include stated insurance minimums, leaky load restrictions, printed tare weights and others. At present, 204 trucks have permits to use Plant No. 1.

To finance the construction and operating costs, the county imposes a one-half-mill tax for each installation. We route non-combustible items to an ash dump in an abandoned quarry at Site No. 1. For this service we charge at the rate of $2 a ton with a $1 minimum fee.

Bid forms and specifications for the first incinerator included separate designs for traveling or rocking grates for the dryer. Study of the construction and operating costs indicated the traveling grate to be more economical and we chose that type for all three incinerators.

A trucker who has complied with the preliminary regulations and wishes to dump combustible material stops on the 24-by-10-foot concrete scale pad. A 20-ton Fairbanks, Morse scale prints a ticket from which the operator subtracts the tare weight. He hands the trucker one copy from his enclosed booth and files the other for report use.

The trucker then wheels his vehicle into one of the six dumping slots in the enclosed dumping platform and discharges the load into a 500-ton-capacity hopper. Two P & H cranes, each with a 2½-yard bucket, transport the refuse from the pit, 70 feet below the crane rails, to two 4-by-8-foot elevated hoppers. A traveling bridge of 44-foot span provides the cranes with the necessary flexibility of operation. If a fire should occur in the hoppers, the crane operators cover them with asbestos sheets.

Two M. H. Detrick furnaces, each with a 24-hour capacity of 250 tons, operate in parallel. Each has one set of inclined drying and horizontal burning grates. From one of the hoppers the refuse falls to the Combustion Engineering drying grate which is 8 feet wide by 17 feet long; the grate rests on an angle of 25 degrees.

This unit delivers dried material to the horizontal burning stoker containing an area of 164 square feet. The design capacity is 70 pounds

(Continued on page 141)

RESIDUE CONVEYORS by *Beaumont*

Chosen for All Three Delaware County Incinerators

Typical residue handled by Beaumont Incinerator Residue Conveyors

Beaumont Residue Conveyors can be used with any type furnace. Note vast range of experience indicated by the following list of installations:

Continuous Burning Furnaces with traveling Grates:

City of New York Incinerators:
Gansevoort,
South Shore, 73rd St.
Greenpoint and Betts Ave.

Delaware County, Pa.:
Incinerator No. 1
Incinerator No. 2
Incinerator No. 3

City of Providence, R. I.

Reciprocating Grates
North Tonawanda, N. Y.
Greenwich, Conn.

Continuous Burning Furnaces with rotary kilns:
Atlanta, Ga., Stickney, Ill.,
Louisville, Ky., Miami, Fla.

Batch-Fed Type Furnaces

Circular Furnaces:
Babylon, Scarsdale,
Rye, N. Y., Waterbury, Conn.
Salem, Mass., & Hempstead, N. Y.

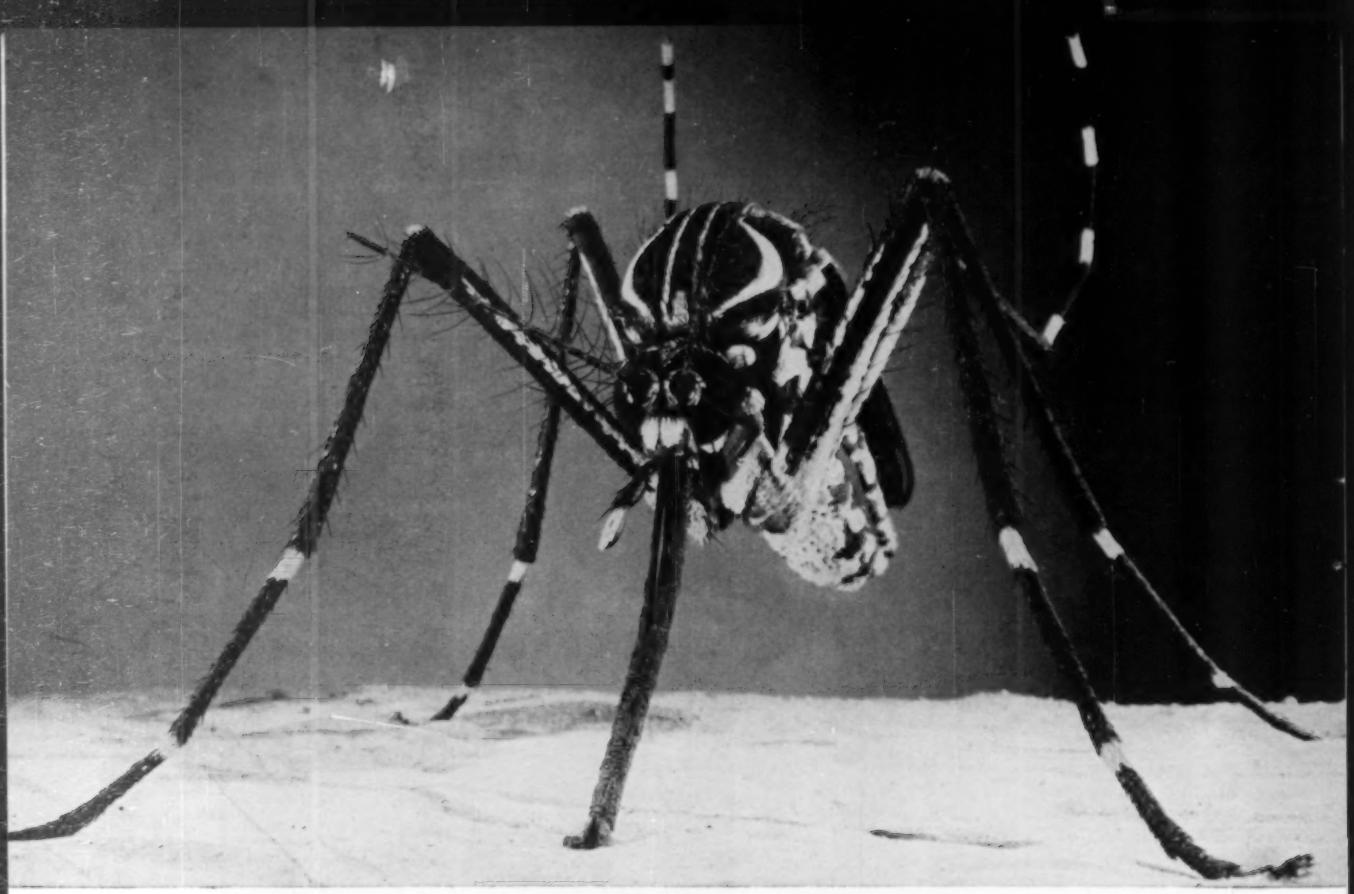
Rectangular Furnaces:
Bridgeport, Conn.,
Newton, Mass.
Pelham Manor, N. Y.
Pittsburgh, Pa.
56th St., New York City

Beaumont also manufactures Charging and Ash Gates, Dried and Incinerated Sludge Conveying, Coal and Ash Handling Equipment.

Send for descriptive literature and sizes available.

BEAUMONT BIRCH COMPANY
1508 RACE STREET, PHILADELPHIA 2, PA.

DESIGNERS—MANUFACTURERS—ERECTORS BULK MATERIAL HANDLING SYSTEMS



NOW SHE'S REALLY HAD IT!

Economical malathion-Lethane combination gives 30% better kills than presently-used insecticides ...controls resistant strains, too

60% kill of mosquitoes in area control work is no longer good enough. 90% *plus* is what you can expect with a malathion-Lethane combination. The cost? Comparable to presently-used but *far less effective insecticides.*

Controls larvae and adults

Malathion plus Lethane gives spectacular results on both life stages. While recommended rates are generally higher, 1/10 lb. per acre has given excellent control of adult mosquitoes in Florida. Hundreds of thousands of acres are being treated yearly for larvae in California at 1/2 lb. per acre with similar results.

Controls resistant strains

While malathion is replacing less effective insecticides in all areas, it is particularly useful in the many areas where mosquitoes have become resistant to chlorinated insecticides. Here, authorities have switched almost exclusively to malathion because it is *the* phosphate with low toxicity to warm-blooded animals. The U.S. Public Health Service reports that malathion is actually less toxic than DDT. Vector control authorities, park and city managements are specifying malathion for its combination of mosquito-killing power and safety in use. It can be applied by air, thermal fogging and mist spraying with equally good results.

Formulations widely available

Malathion formulations are supplied to area control authorities by many well-known manufacturers under their own brand names. *Write to American Cyanamid Company,* maker of technical malathion, for detailed information on area mosquito control. American Cyanamid Company, Agricultural Division, New York 20, New York.

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow directions for use.

CYANAMID

MALATHION

INSECTICIDES

(Continued from page 139)

per square foot of grate area. If the moisture content of the refuse changes, furnace operators can vary the stoker speed from 12½ to 150 feet per hour. They may reverse its direction of travel for maintenance. Each stoker operates independently of the others. The operators change broken grate keys on the traveling stoker by stopping the motion when the broken grate appears on the sprocket located outside the furnace. They pull the pins and insert a replacement while burning continues.

A manually controlled American blower fan aids in keeping the burning temperatures between 1600° and 1800° F. It also creates the desired turbulence and prevents odors by boosting sedimentation - chamber temperatures above 1200° F.

The sedimentation chamber contains baffles and an increased cross-sectional area. When the ash leaves the stoker it enters a bifurcated chute which channels the ash into one of two water-sealed collectors. Two Beaumont-Birch conveyors remove the ashes from the water seal and discharge them into an abandoned quarry. An HD6-Allis Chalmers loader distributes the residue to keep the discharge opening free.

After leaving the sedimentation chamber the hot gases race up the 160-foot-high Rust Engineering stack. Intelligent plant operation enables us to meet the strictest air-pollution standards.

We presently operate Incinerator No. 1 five days a week on a two-shift schedule from 8 a.m. to midnight with a total of 24 men. Typical monthly reports indicate about 8,000 tons of refuse are burned in the incinerator and 100 tons buried in the quarry. Operating costs approximate $2.13 per ton of refuse disposed. Based on present tonnage and 25 years of interest at 3.2%, capital costs total $1.82 a ton.

Truckers deliver refuse from a varied clientele. It includes industries, small businesses, colleges, schools and collectors, both municipal and private. We expect yearly tonnage to total 200,000 when all three incinerators are in action. This will rise to 300,000 in 1980. County-wide incineration is economical and convenient.

The consulting engineers who designed the plants are Damon and Foster of Sharon Hill, Pa.; Cotton, Pierce and Streantor, New York; Paul P. Kopf, Philadelphia; and Louis H. Doane, Wilmington, Del. ◄

Modern Waste Disposal
DEMANDS
MODERN INCINERATORS

You tell us—
We'll tell you—

Tell us the population of your area. We'll tell you frankly why incineration is the best answer to your waste disposal problem . . . the type and size incinerator needed . . . Approximate construction and operating costs. No obligation.

INCINERATORS BY
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Today's Engineering Backed By More Than 70 Years' Experience

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Dept. 20-C, New York 11, N. Y.
WA 9-8000 • Representatives Everywhere
MEMBER
Incinerator Institute of America
Air Pollution Control Association

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WRITE TODAY FOR
100-PAGE
Municipal Supplies Catalog
SPECIFY YOUR TITLE ON YOUR REQUEST
W. S. DARLEY & CO.
CHICAGO 12

New compact MASTER 10 MARKER replaces truck-mounted markers...

It's true . . . the new Master 10 has the same capacity (120 gal.), the same versatility (lays 1, 2, or 3 lines 3" to 6", 1 or 2 colors), marks equally fast (3 speeds up to 10 mph, plus reverse), . . . yet costs ⅓ less than truck-mounted markers. What's more, this self-propelled, one-man operated, all purpose striper is only 50" wide, thus eliminating traffic tie-ups while marking city, county or state roads. It's a money-saver in price, operation and maintenance . . . let us prove it. Write M-B Corp., New Holstein, Wisc., Dept. AC.

M-B CORPORATION
NEW HOLSTEIN, WIS.
LINE MARKERS • PACKER BODIES
SWEEPERS
QUALITY MUNICIPAL AND INDUSTRIAL EQUIPMENT SINCE 1905

"There goes the old playground!" loaded out at low cost by a **John Deere 1010**

To prepare ground for a new automobile driveway and turn-around space at an elementary school, the excavating contractor used its "1010" Crawler-Loader to tear out a portion of the old playground surface and sections of the existing blacktop driveway.

The loader operator commented, "I like the "1010"—especially the single-lever loader control—no fumbling around with levers. For fast loading, you can't beat the new hydraulic direction reverser, either. The machine has plenty of power for getting a full load."

Compact and fast-handling, the John Deere "1010" rates high with operators and owners, private contractors and city operating departments. New 4-cylinder, 4-cycle gasoline and Diesel 40 h.p. engines deliver the versatile performance loader operation requires—on earthmoving and material-handling jobs as well as specialized applications, such as sanitary landfill.

Complete specifications are available through the John Deere dealer. For details, contact him now through your classified telephone directory. John Deere 3300 River Drive, Moline, Illinois.

JOHN DEERE

TRACTORS
LOADERS
LANDSCAPING
AND
MATERIAL
HANDLING
EQUIPMENT

Computer Contract

. . . puts Nashville's financing on an efficient punched-card basis at nominal cost

By J. E. TORRENCE
Director of Finance

With a single piece of equipment in our own offices, plus a relatively inexpensive monthly expenditure, Nashville, Tenn., has been able to take a big stride in the direction of paper-work automation.

There is no expensive computer at work in our offices, no corps of specially trained technicians, yet we have been able to achieve a degree of control over budgets and revenue every bit as good as that achieved by larger municipalities owning or renting their own equipment. What we do is "buy time" on the computer and other machinery owned and operated by a national computing service located here in Nashville, paying only in accordance with the work performed for us.

The accounting job in Nashville is much different from most cities of similar size and population (180,-000). The government is headed by a mayor, a vice-mayor, and 21 councilmen. The departmental organization would be familiar to most cities of the same size, and presents some factors which tend to centralize functions, while others tend towards the opposite direction. Prior to going into our present accounting methods, we used systems and procedures which went back many years, and had simply been out-dated by the increasing volume of work represented by revenue, appropriation and budget accounting.

The Finance Department is comprised of four divisions:

- **the Central Accounting office, which is the nerve-center from the standpoint of accounting control**
- **the Comptroller's section**
- **the Treasury**
- **the Paymaster or Payroll section**

With this physical setup, we handle the task of recording, accounting, analyzing and budgeting the city's finances. At the same time, we effect the tight control essential to the operation of any municipal government.

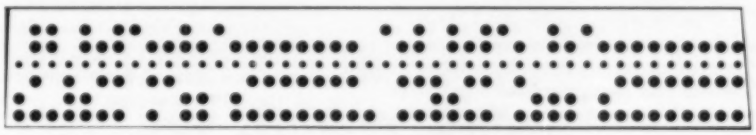
(Continued on page 144)

CITY OF NASHVILLE FINANCE DEPARTMENT - CENTRAL ACCOUNTING DIVISION

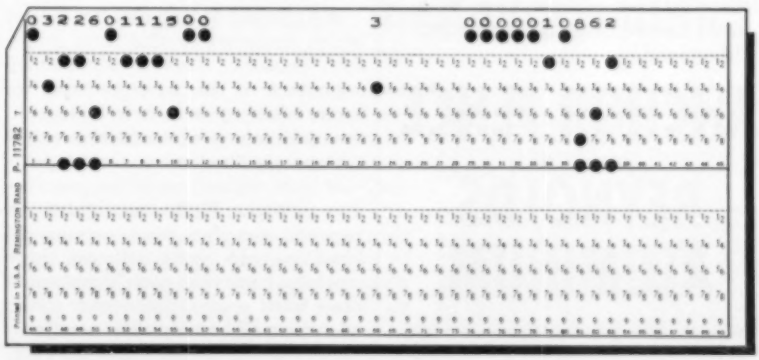
THIS REPORT: ☐ DEPARTMENTAL EXPENDITURE ANALYSIS REPORT ☑ BUDGET & GENERAL FUND REPORT WORKSHEET ☐ LISTING
☐ PURCHASE ORDER & OR CONTRACTUAL ENCUMBRANCE REPORT ☐ EXPENDITURES - SUBCLASS BY MAJOR CLASS BREAKDOWN

DATE MO.	DA	YR.	ACCOUNT NUMBER	PURCHASE ORDER NO.	WARRANT NUMBER	TYPE TRANS.	CLASS CODE DESCRIPTION	CLASS CODE	CURRENT AMOUNT	CUMULATIVE AMOUNT
										CT
										G
			1101				ADMINSTRATIVE OFFICIAL			CT
8		59	1101			9	BUDGET ALLOTMENT TO DATE			1457500T
2		60	1101			7	RECEIPTS TO DATE			29381T
2		60	1101			1	EXPENDITURES TO DATE			49755 4CT
2		60	1101			3	PUR ORD PAYABLE THIS DATE			2364CT

Nashville first posts its accounts on a worksheet like this and . . .



. . . then summarizes them on a punched tape . . .



. . . which then goes to the Univac Service Center to be converted into punched cards.

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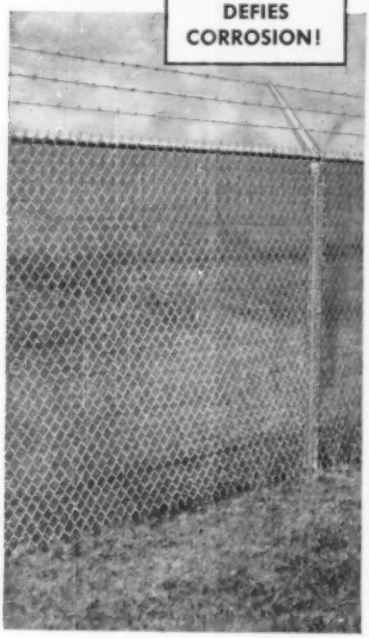
NO PAINTING!
•
DEFIES CORROSION!



Aluminum cuts your maintenance costs on fencing to nearly nothing! And new high-strength alloys assure a fence that will stand solid, straight and handsome through the years!

That's why Aluminum Chain Link is specified for more and more industrial plants, highways, parks and playgrounds.

Call your Anchor Man for more information. Write for free catalog: Anchor Fence, Dept. AC8 6661 Eastern Ave., Baltimore 24, Maryland.

ANCHOR FENCE
made of
REYNOLDS ALUMINUM

Watch Reynolds TV show: "HARRIGAN AND SON," Friday evenings, ABC-TV Network.

(Continued from page 143)

Our present system begins with a posting machine, the only equipment involved which is used in our offices. All transactions are recorded here, properly categorized and posted to the different account ledgers. They are posted in random sequence; there has been no need to set up a routine calling for posting to one set of accounts today and another tomorrow. As the postings are made, an attached tape unit automatically punches a paper tape containing the essential control data. This tape goes to the Remington Rand Univac Service Center in Nashville, which takes over the rest of the job.

At the Center, the tape is converted to punched cards, which then go through a series of machine steps which result in the reports we must have in order to discharge our function.

To begin with, every month we put in the hands of each department head a report which details every transaction concerning his operation. In the past, we had difficulty making this information available on a current basis; now, it is no problem at all.

Then, we get a budget and a general fund recap. All our "1100" accounts (the number refers to our system of coding all accounts for control purposes) are totaled with reference to budget allotments, receipts, expenditures to date, accounts payable, and the overall available balance for the rest of the year. The Remington Rand Service Center charges us an average of $100 a month; this figure includes the cost of the punched cards and the continuous-form paper.

There is also a budget and general fund recap. All our 1100 accounts are totaled with reference to budget allotments, receipts, expenditures to date, accounts payable, and the overall available balance for the rest of the year. The same is done for each one of the 1100 accounts.

Budget Preparation

We also get an expenditure report which combines expenditures under each account. This is particularly important in our case, because we begin working on a new budget on the ninth month of the fiscal year. At that point, the Univac Center provides us with a complete year-to-date report. With the figures on expenditures for nine months on hand, we can easily estimate three more and provide each department head with a good barometer as to what he might need in the new year. More than that, with this information on hand at budget hearings, we are in a far better position to evaluate the new budget requests.

This report, as noted above, combines expenditures under each account. The next one breaks them down into the 15 categories we use for control purposes.

The final report is a departmental expenditure analysis. For each department, it provides a transaction-by-transaction listing for each account. We provide a copy to the department head, who can immediately check to determine whether it coincides with his own records. It should be noted that thus far, this report has consistently proved to be accurate.

In considering the significance of obtaining such data quickly and accurately, it must be kept in mind that prior to adopting this new system one of our most persistent problems occurred regularly at the end of each month. If we were fortunate, we managed to close our books two days before the end of the month; we couldn't open them again until the second day of the new month.

This is no longer a problem. At the end of the month, we simply run through accounts payable and certain other data to check against the service bureau's report. The very next morning, we move into the new month's work without delay.

To the writer, this fact has special significance. Control is the essence of efficiency. If your accounting system leaves you guessing for four, five, or six days every month, you are skating on thin ice. If the new system did no more than to remove this one problem, it would be well worth the cost.

Actually, of course, it has done much more. It has made possible a very real improvement in record-keeping, reporting, budget-making and financial control. We are able to make information available to department heads on a much more current basis, and in some cases it is information which simply couldn't be made available previously.

It also plays a major role in controlling what we call our big fund—the General Fund. It is here that most of the city's operating monies are deposited. Beside the general-fund budget, this includes special accounts and non-allotted budgets. The latter have an annual appropriation, rather than a 12-month allotment.

The general fund also takes in non-revenue accounts. It includes city agencies which operate on their own revenues. They collect these

from other city departments which they serve. We also have certain restricted accounts and a current-revenue section made up of several different accounts. These generally comprise contingencies which could not be foreseen when the budget was set up, and as the year moves on can become quite numerous.

All of this adds up to a complex accounting problem, which simply could not have been handled so efficiently any other way. Despite the workload, it is not heavy enough to justify buying or renting our own punched-card equipment but we are able to get equivalent results by utilizing the service rendered by the Univac Center.

This is not, of course, paperwork automation, but it does represent a big step in that direction. The cost of the entire job is infinitesimal when compared with the results obtained—results which put us on a par with the largest municipalities in the country.

What we have done, in effect, is to move towards automation in a realistic manner, something which most municipalities are going to have to do at one time or another. Local governments for some time have been pinched for finances on which to operate, and the pinch is going to become tighter. It is essential for city finance directors to promote greater efficiency of operation, and therefore greater economy in the cost of government.

This is exactly what we have succeeded in doing, in a manner—and at a cost—completely in line with our needs and resources. ◄◄

Find Fun in Phoenix

If anyone in Phoenix, Ariz., wants to know how to enjoy himself this summer inexpensively, the city's Department of Parks and Recreation has a summer directory that will give the answer.

This folder, called a "Fun Finder," thumb-tabs the summer program into five general groupings: special events; aquatic areas and arts and crafts; softball, baseball and tennis and golf instruction; special recreation areas and clubs; and recreation centers.

City officials wishing a copy of Phoenix' "Fun Finder" can obtain it from the Parks and Recreation Dept., 2700 N. 15th Ave., Phoenix, Ariz. ◄◄

LOW COST Protection!
KATOLIGHT
STANDBY POWER
Gasoline, Gas Diesel Models to 750 KVA
Katolight is a pioneer in the design and installation of Standby Power Plants . . . your assurance of dependability. Hospitals, municipal services, utilities, contractors, industries and military services all over the world depend on Katolight emergency electrical power. Call or write for quotation.
SPEEDS WORK! Low Cost!
KATOLIGHT
PORTABLE POWER
AVAILABLE ON DOLLIES OR TRAILERS
Crews have "plug-in" power at their finger tips when and where they want it. Quick, steady power for operating electric saws, grinders, drills, hammers, heaters, sanders, paint sprayers. No delays . . . No nuisance power line hook-ups. 500 to 35,000 watts and up.
BIGGER OVERLOAD CAPACITY
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Box 891-25 Mankato, Minnesota

APCO SUPER-DeLAVAUD CAST IRON PIPE WITH ALTITE® JOINTS

meets ALL 10 requirements for underground mains

- Service for centuries
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- Strength against impact
- Beam strength
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- Impervious pipe walls
- Low installation costs

NO cheap substitute pipe can meet these "musts"

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NEW YORK: 350 Fifth Avenue
KANSAS CITY: Suite 950, 1006 Grand Ave.
DETROIT: 18505 W. Eight Mile Road
SOUTH GATE, Calif: 5335 Southern Ave.

Architect: Walter M. Gaffney Associates, Inc., Hyannis, Mass.

"... our Anchor® Fence prevents double trouble."

King Philip Regional High School, Wrentham, Mass.

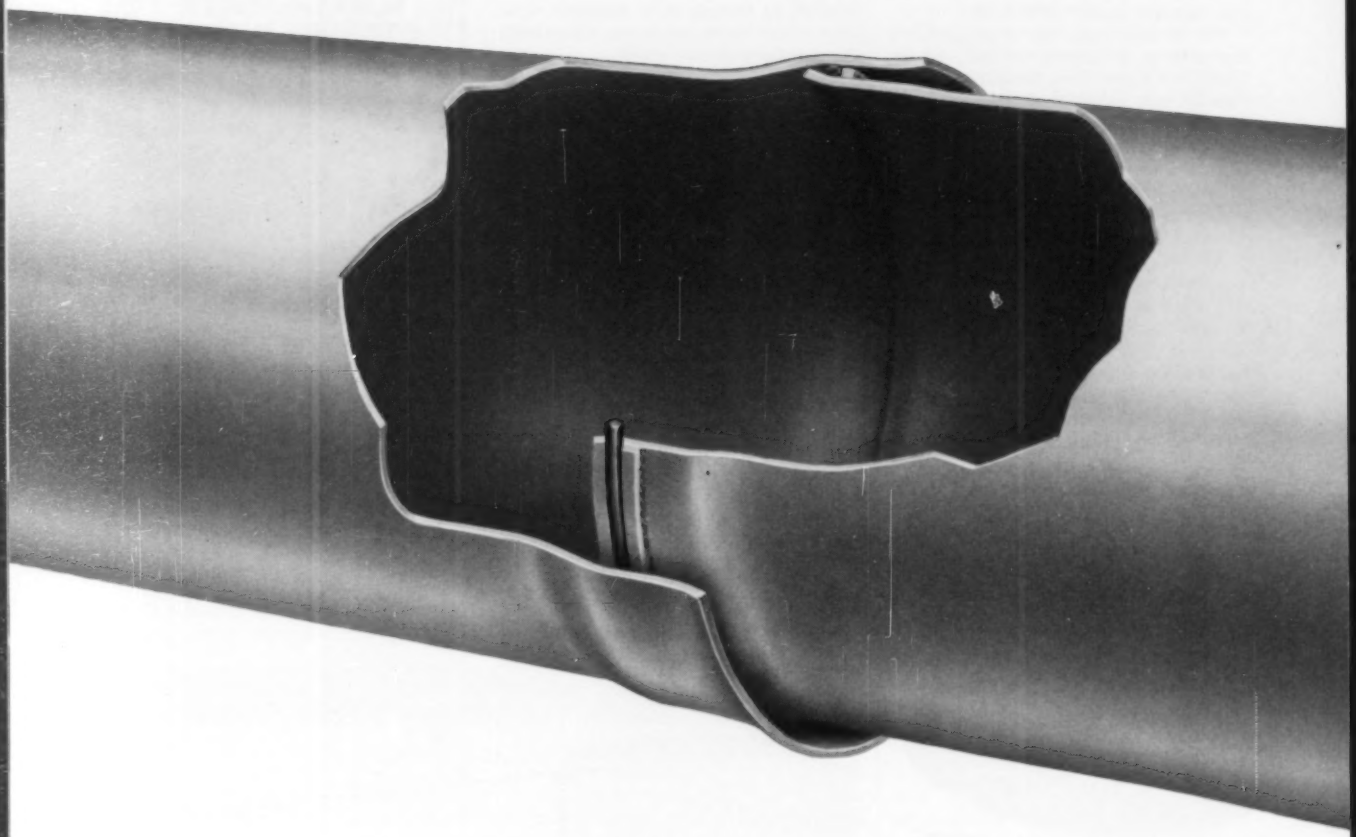
"Our high school's football field borders on the back yards of several private homes on one side, a road on another—so you could say our Anchor Fence prevents double trouble. One, it keeps our activities within our own grounds. Two, it keeps our grounds free from outsiders. About 3500 feet of Anchor Fence have been doing both jobs beautifully since 1957—and all with no maintenance!"

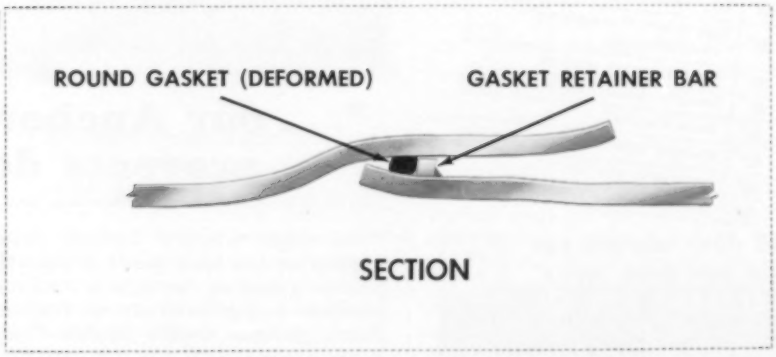
Call your local Anchor office today for a talk with one of Anchor's trained sales engineers. For our free catalog, write: ANCHOR FENCE, 6566 Eastern Avenue, Baltimore 24, Maryland.

ANCHOR FENCE

Division of ANCHOR POST PRODUCTS, INC.®

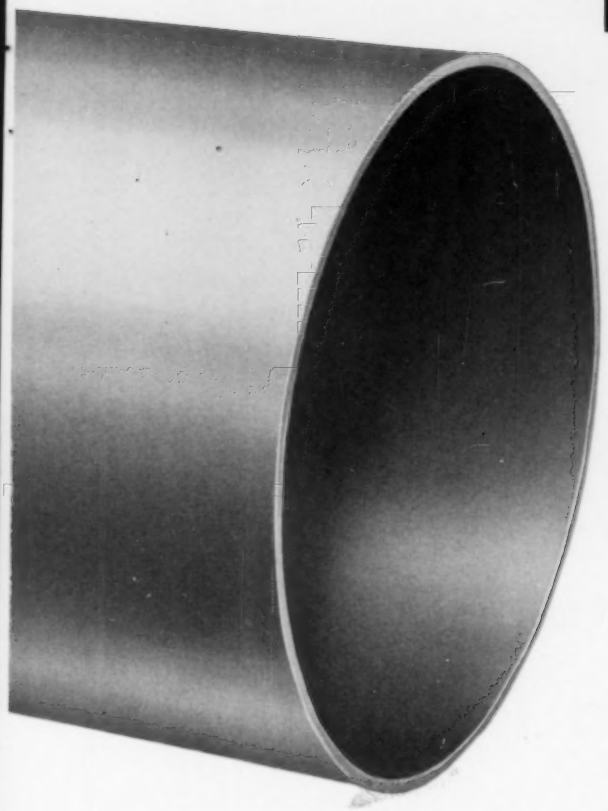
Plants in Baltimore, Md.; Houston, Texas; Whittier, Calif. Sold direct from factory branches in principal cities.





SECTION

Introducing Bethlehem's Bell-and-Spigot Joint, with Gasket



Here's a joint that promises new ease and speed of installation, added to the many well-known advantages of *steel* pipe.

We make it in diameters from 24 in. through 120 in., but if you have something a little smaller or larger in mind, let's talk it over.

And this joint is *tight*. We've tested it to over 450 psi (more than double ordinary working pressures) *and it didn't leak a drop.*

We can line and coat the pipe at the shop with top-quality coal-tar enamel, and wrap it if desired. This gives you the best, longest-lasting protection that money can buy, plus high flow capacity. But if other coating combinations are preferred, we'll supply the pipe to comply.

As with all steel pipe, every single 40-ft length undergoes a hydrostatic test well in excess of the design working pressure.

If you're thinking about installing a large-diameter water main, let us give you more information about our new Bell-and-Spigot Pipe. We suggest that you have a talk with the people at the Bethlehem sales office nearest you.

Steel

for Strength . . . Economy . . . Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Refuse Collector "Doubles" in Snow Removal

Dumpmaster clearing bridge prepares to empty snow scoop into its compaction body.

DEMPSTER-DUMPMASTER with Snow Scoop Performs Valuable Emergency Duty . . .

The DEMPSTER-DUMPMASTER, in service in most leading cities as a collector of containerized refuse or as a hand-loaded packer for trash and tree trimmings, now offers its owners still another valuable service. With the addition of a low-cost, snow-scoop container, the Dumpmaster becomes a highly efficient snow-removal device.

Taking up only one lane of traffic, the Dumpmaster moves along the curb, driving its snow scoop into the piled-up snow. When full, the scoop is lifted overhead and emptied into the compaction body hopper. Here, it is compressed by the 60,000-pound pressure of the packer plate, making room for bigger pay loads.

When full, the Dumpmaster proceeds to a nearby disposal point where it hydraulically ejects the huge icy cube that once was tons of traffic-clogging snow.

This type of versatility is just another reason that the Dumpmaster is your best buy in mechanized refuse collection.

Snow is dumped into compaction body.

Huge cube was once traffic-clogging snow.

DEMPSTER DUMPMASTER

Write Today for
FREE BROCHURE
DEMPSTER BROTHERS
Inc.
Dept. AC-8 Knoxville 17, Tenn.

The Linda County Water District sewerage facilities will include a complete collection system and treatment plant.

School Children Swing Bond Election

. . . after voters failed to approve a much needed sewerage program on two previous attempts

By **HAROLD R. LOWE**, District Manager
Linda County Water District, Marysville, Calif.

Never underestimate the power of children when it comes to persuading their parents. As a result of this persuasive power, the residents of an unincorporated suburb of Marysville, Calif., served by the Linda County Water District, can look forward to an improved living environment.

About seven years ago when the Water District was formed, the lack of water and sewerage facilities restricted growth in the area. The district retained Dean S. Kingman, consulting engineers of Palo Alto, Calif., to study the situation and submit recommendations. The report proposed that first consideration be given to a public water supply and the people concurred by authorizing a $600,000 bond issue in 1955. Service started in 1956 and this led to increased growth and consequently increased sanitary problems.

When it came to financing sanitary facilities, the story was different. In an election held in 1957, the majority of the voters said "no." During the next two years the problem became more acute, due in no small part to the close proximity of Beale Air Force Base.

Once again we appealed to the people, this time with the aid of professional help supplied by the J. B. Hanauer Company, financial consultants. Preliminary work included organization of a civic committee which supported the proposal for a $1,650,000 sewer bond issue. But in an election in October 1959, the voters again turned us down.

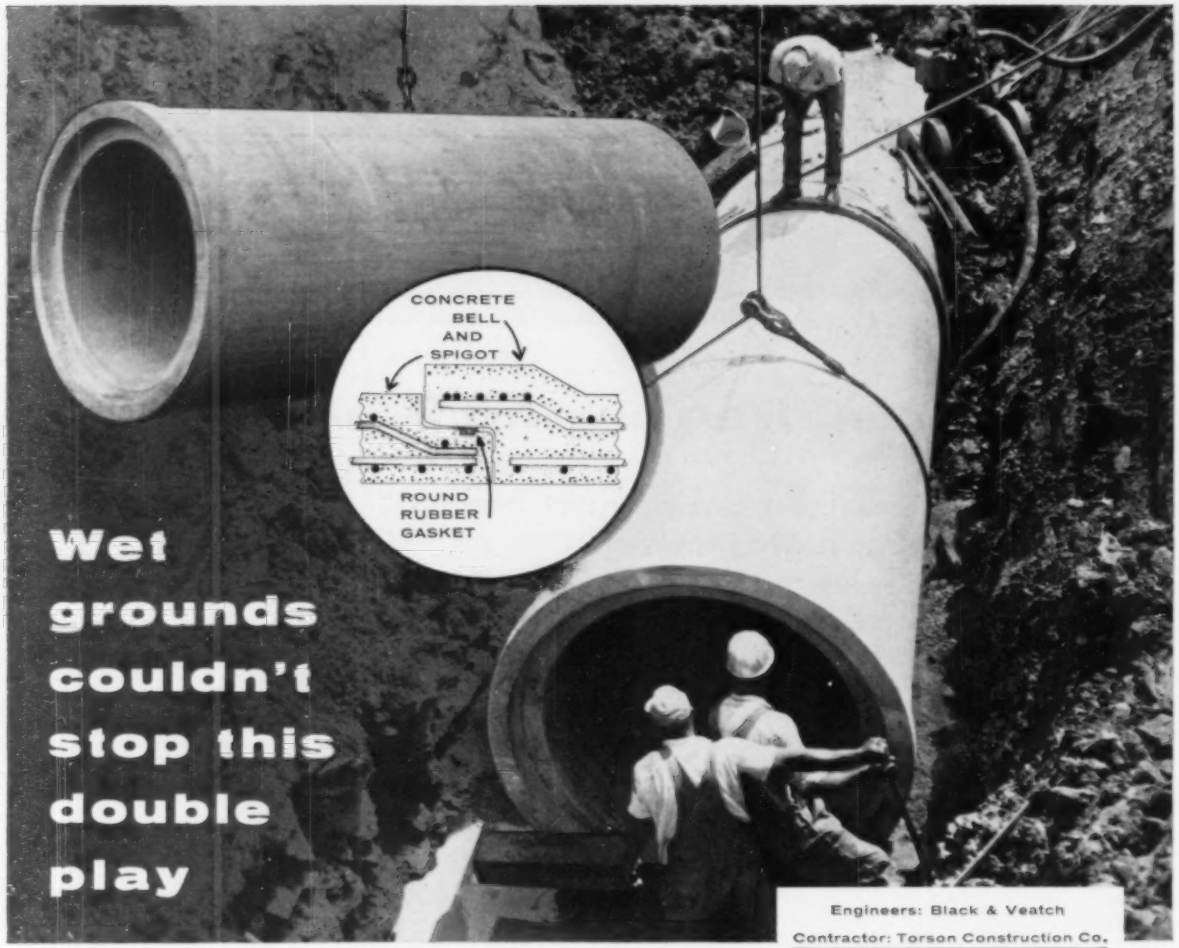
The announcement of plans for two new subdivisions with a total of 1,750 houses brought the problem to a crisis stage. The district officials decided to hold another sewer-bond election only three months after the last one. It was at this time that Mrs. Edith Oberg of the Hanauer Company hit upon the idea of enlisting the help of the children.

We asked the boys and girls in the elementary school grades to make posters dealing with health, sanitation, and the forthcoming sewer bond election. Since no normal parent could ignore the creative efforts of his or her youngster, the children were encouraged to take the posters home and show them to their mothers and fathers.

This approach, coupled with direct distribution to the voters of explanatory pamphlets on the sewer situation and increased activity by the civic committee, finally turned the tables. In fact, the people approved a $1,950,000 bond issue, $300,000

(Continued on page 151)

This Buckeye trencher served to speed the laying of 38 miles of vitrified clay sewer pipe; the contractor used two manhole crews, two crews for lateral work and six crews to lay collector and trunk line. At right are the district contractor and engineering personnel.



A-M REINFORCED CONCRETE PIPE with CONCRETE and ROUND RUBBER JOINTS

The problem:

Installation of 8,000 ft. of concrete sewer pipe running parallel to a creek and below its water level. The problem was complicated by numerous springs and unstable ground conditions so serious as to allow opening the trench for only one or two lengths of pipe at a time.

The solution:

Long lengths of A-M's 60″ C. & R. R.* pipe reduced the total number of necessary joints. Quick, easy fitting of the joints cut installation time in spite of the problem of poor ground conditions. Tight joints far exceeded the maximum infiltration requirement for this Johnson County, Kansas project.

Write our technical staff for help in solving your problem.

*American-Marietta's Concrete And Round Rubber Joint.

A-M

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

(Continued from page 149)

more than previously called for, to offset an increase in labor and material costs. Also, at the time of the election this community of approximately 5,000 still had an outstanding indebtedness of $580,000, with an average assessed valuation per capita of $2,550 and a tax rate of $5.58 per hundred.

The sewerage facilities include both a collection system and a treatment plant. The former consists of 38 miles of vitrified clay pipe from six inches through 27 inches in diameter. Our consultant, Dean S. Kingman, based the design of all sewers on the ultimate population of the District. The incorporation of three lift stations eliminated the need for very deep sewers. Interceptors were sized for 40-year growth, with provisions for an additional interceptor in the future.

The sewage plant will provide complete treatment by means of primary sedimentation, biofiltration, secondary sedimentation and separate sludge digestion. The effluent will be chlorinated and discharged to oxidation ponds providing 20 days' retention. Final discharge is to the Feather River—by gravity most of the time and via an effluent pumping station during high water periods.

With these facilities nearing completion the residents of the District need not fear continued growth in the area nor the possibility of disease in epidemic proportions caused by sewage-saturated soil, overflowing septic tanks and other unsanitary conditions. ◄◄

Underground Parking For New York

Final plans for the construction of an underground garage at Lincoln Center have been approved by the New York City Board of Estimate at a total estimated cost of $10,898,814. The major portion of this cost in the amount of $10,066,042 will be paid for under a federal-city grant-in-aid with the federal government paying two-thirds and the city one-third. The Lincoln Center will contribute $720,425, and the State of New York $484,000.

The garage with more than five acres of parking space will be constructed on two levels of near-equal capacity with a total capacity of 730 cars.

A 250-horsepower ventilating fan for the garage exhaust system will generate 325,000 cubic feet of air per minute through wide tunnels. ◄◄

WHY TIE UP A BIG RIG?

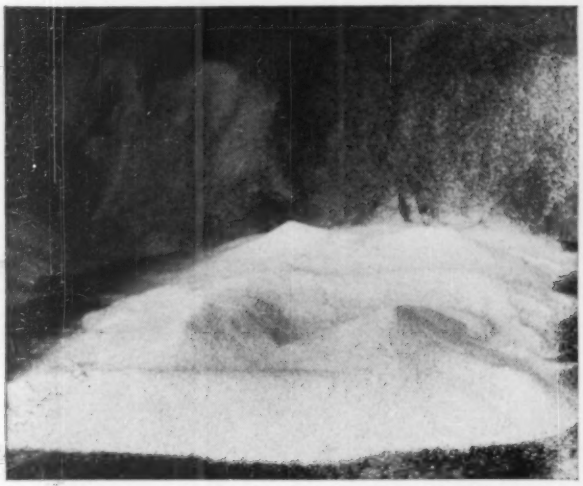
How many times have you put a $10 . . . $20 . . . or $30-an-hour rig to work on jobs the Allis-Chalmers industrial tractors could have handled?

Initial investment is low, operating cost a fraction of the bigger rigs . . . you can put on a ⅜-yd hoe and a ⅝-yd loader; a full-yard reverse loader, a blade or a fork lift—make them jacks-of-all-trades for the jobs they are designed to do!

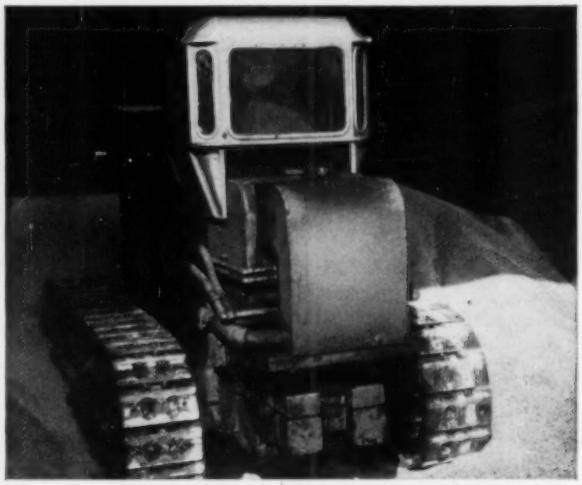
For your profit's sake, **IT DOESN'T COST TO FIND OUT** what a bonus you can earn with one of these money-makers! See your Allis-Chalmers dealer, or write Allis-Chalmers Utility Tractors, Allis-Chalmers Mfg. Co., Milwaukee, Wisconsin.

ALLIS-CHALMERS

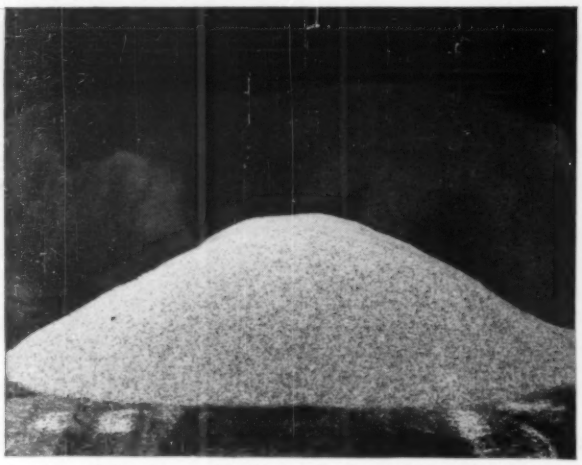
FAST, ECONOMICAL BARE PAVEMENTS with mixes based on Columbia Calcium Chloride ...here's how (a case study from the field):



1. On a well-drained asphalt mat, dump rock salt and Columbia Calcium Chloride (generally two or three parts salt to one part Calcium Chloride).



2. Mix and blend thoroughly with front-end loader, when both salt and Columbia Calcium Chloride are dry.



3. Shape into a compact pile for storage until needed. Cover with a flexible laminated tarp that won't pick up moisture.

4. When snow and ice come, dig in to the pile; if light crust has formed, it breaks easily. Your Columbia Calcium Chloride-salt mixture is ready for instant ice removal and snow melting.

Here's why highway departments that "keep 'em open" depend on Columbia Calcium Chloride ice-removal mixes

ECONOMICAL . . . because mixes work faster at any temperature, you use fewer pounds of chemical per mile. Heat-producing Columbia Calcium Chloride penetrates at once, and helps the salt work faster, too.

READY FOR INSTANT USE . . . by stockpiling mixes of salt and Columbia Calcium Chloride, you keep your fastest bare-pavement weapon ready to load.

Order Early. Your PPG Chemical Division representative will be glad to work with you in planning requirements and training crews to make mixtures with Columbia Calcium Chloride. Write or call our nearest office.

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Gasoline "Shrinkage" Drops in Milwaukee

In Milwaukee, the gradual tightening of specifications for gasoline during the past few years has resulted in the purchase of more stable gasoline with less shrinkage in storage. The total shrinkage during the 1960 year was less than half of what it was a few years ago. Minimum as well as maximum temperatures of evaporation were specified. The results were:

1. Less evaporation in storage.

2. Less vapor-lock in operation of equipment.

City Purchasing Agent Andrew L. Lehrbaummer tells that the shrinkage could be further reduced by discontinuing the gallon adjustment to the 60°F formula, requiring instead that the gasoline be metered at the delivery point at prevailing local temperatures, or when loaded in Milwaukee on the day that it is delivered.

Gasoline metered when loaded at a distant point would still have to be adjusted to 60° F. Since the average temperature in Milwaukee exceeds 60° during only a few months in the year, the city would gain by receiving and paying for local metered volume. ◄◄

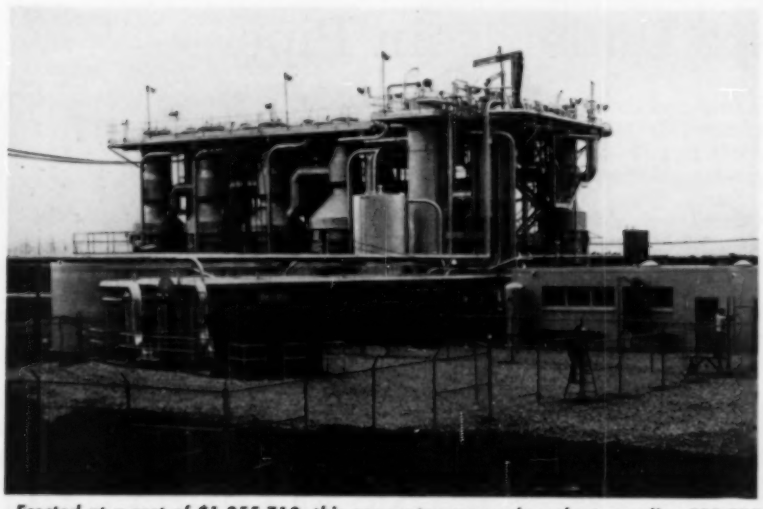
No Difference in Taste

Residents of Freeport, Texas, have been using a blend of converted sea water and well water since May 31st. Apparently few people noticed any change in water quality, for no citizen complained about the quality or taste of the water during the six days in which the blend was used but not announced, and no one has registered a complaint since the announcement was made to the public on June 5th.

Freeport obtains its water supply from seven deep wells having a combined capacity of approximately 3.5 mgd. In addition, the city purchases 500,000 gpd of converted sea water from the nation's first sea-water conversion plant erected under the U. S. Department of Interior's sea-water conversion program. This converted water is pumped into a 500,000-gallon tank, then mixed with an equal amount of well water taken from a similar ground-storage tank and pumped into the distribution system.

The 1,000,000-gpd long-tube vertical multiple-effect distillation plant produces 9.5 pounds of potable water per pound of steam. The operating temperature ranges from 250°F in the first effect down to 120F° in the 12th effect. Salinity of the untreated water is 35,000 dissolved parts of salt per million parts of water and that of the product water is 50 ppm total dissolved solids. The plant effluent has a salinity four times that of sea water, or about 140,000 ppm. It is discharged into the Dow Chemical Company's sea-water flume for discharge into the Gulf of Mexico.

The city purchases half of the daily plant output and the Dow Company purchases the other half. ◄◄



Erected at a cost of $1,255,712, this sea-water conversion plant supplies 500,000 gpd of water to Freeport, Texas, and a similar amount to industry.

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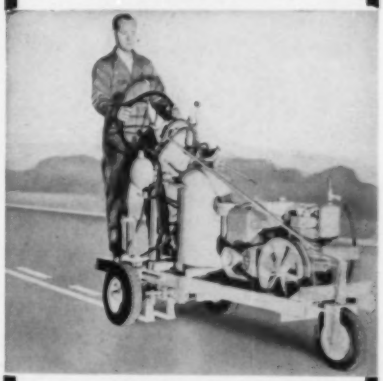

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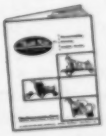

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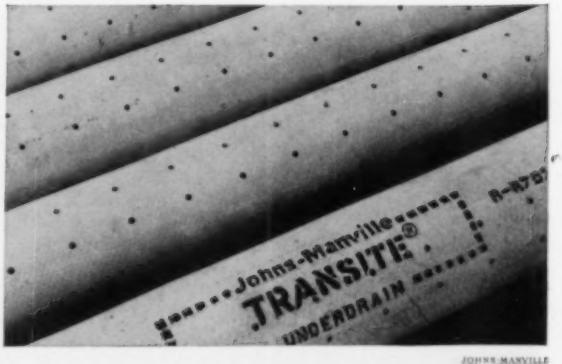
Eliminate the contributing causes of sags, holes and similar hazards to under-wheel safety with perforated Transite® Underdrain Pipe. Its superior performance in groundwater control has been proved in many county, state and federal installations.

Transite Underdrain has an exceptional weight-to-strength ratio. The coupling, used to form the joints, assures a flexible yet reliably joined system. This, combined with long (10′ and 13′) lengths, keeps the pipe aligned and allows the line to ride with normal soil movement without disturbance to the system. Transite's smooth inner surface and low coefficient of friction assist the flow of water and reduce the opportunity for water-borne silt to build up on the invert. Thus, the accurately sized, drilled and located perforations can perform their function of letting groundwater into the line at a maximum flow rate.

For full details, send for data sheet TR-246. Write to Johns-Manville, Box 14, AC-8, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.



JOHNS-MANVILLE JM PRODUCTS

ZONING AND PLANNING DECISIONS

Edited by NORMAN WILLIAMS, Jr.

Racial Covenants—Again

TEXAS. *Harrison* v. *Tucker*, 342 South Western (2d) 383 (Court of Civil Appeals (intermediate court), January 6, 1961).

NEW YORK. *Gast* v. *Gorek*, 211 New York Supplement (2d) 112 (Supreme (lower) Court, January 16, 1961).

In 1917 the United States Supreme Court held that racial zoning ordinances, restricting the occupancy of housing on a given block to either whites or Negroes, were unconstitutional[1]; yet racial zoning ordinances continued to turn up occasionally in court for the next thirty years. However, after that decison, the principal efforts to enforce residential racial segregation shifted to racial covenants; and in 1948 the Supreme Court held that, under the constitution, these also could not be legally enforced.[2] As with racial zoning, cases have continued to turn up involving various subterfuges, more or less ingenious, in an attempt to enforce such covenants.

In the Texas case, an action was brought to enjoin defendant from offering his home for sale to Negroes, apparently in a changing neighborhood; and the lower Court actually issued an injunction to that effect, on the ground—always raised in racial covenant cases—that property values would be depreciated, and on a theory of the "balancing of equities," whatever that might mean. On appeal, the intermediate Texas Court of course reversed the decision, since it ran contrary to the Supreme Court's decision.

The astonishing New York decision involved an action for a declaratory judgment of the invalidity of a racial covenant on Long Island. The court held that, under the Supreme Court decision mentioned above, the covenant was not invalid *per se*, but that it could not be enforced by injunction—which was true. However, the Court went on to say that it could be the basis for an action for damages. The only explanation for this is that this Court had simply not heard of *Barrows* v. *Jackson*, 346 U. S. 249 (1953), where the Supreme Court held that racial covenants could not be enforced by an action for damages.

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[1] Buchanan v. Warley, 245 U. S. 60
[2] Shelley v. Kraemer, 334 U. S. 1

Permissive Zoning—Residence Districts

VERMONT. *Murphy Motor Sales* v. *First National Bank of St. Johnsbury*, 165 Atlantic (2d) 341 (Supreme (highest) Court, November 1, 1960).

The original American zoning ordinances were usually permissive in form in the residence districts, specifying only a few permitted uses, and prohibitory in form in the manufacturing districts; the commercial districts might be either way. During the last twenty years, there has been a steady movement towards rephrasing zoning ordinances so as to be permissive throughout, primarily because this form gives additional protection: any new type of land use, or anything which is forgotten, has to wait to be classified into the proper district, instead of going, as of right, into the most restrictive district with prohibitory regulations. It is, however, most unusual to find a zoning ordinance with the residence district regulations written in the prohibitory form. Baltimore once had such an arrangement, and the town of St. Johnsbury —which has some of the loveliest old residential areas in New England—has just found out what such an arrangement means.

This case involved a proposal to move a diner a short distance from a commercial into a residential district. The St. Johnsbury zoning ordinance listed specified prohibited uses in a residence district, not including either a restaurant or a diner; and there was no general exclusion of business or manufacturing establishments in such areas. In this situation, the Court held that the diner was permitted as of right in a residence district, and refused to issue an injunction. Unhappily, there is no question that this was the right decision in the circumstances; it is not up to the courts to rewrite the basic structure of zoning ordinances.

Meat-Processing Plant In Residential District Denied

In proceeding relating to certificate of occupancy for meat-processing plant in residential zone which use had been previously conducted on premises but had been discontinued for period of over twelve months, held certificate denied and original non-conforming use held abandoned. *State* v. *Mortenson*, 96 N.W.2d 603 (Wis., May 5, 1959)

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. . . The elections recently held demonstrated once more the value of voting machines . . . The machines assure an accurate count . . . human counting in a race as close as that . . . would surely have resulted in a call for a recount . . . but the machines have no emotions and no preferences. Voting machines are more than a convenience. They are a necessity . . . they not only increase the speed and accuracy of the tabulation, they reduce confusion and opportunity for election chicanery.
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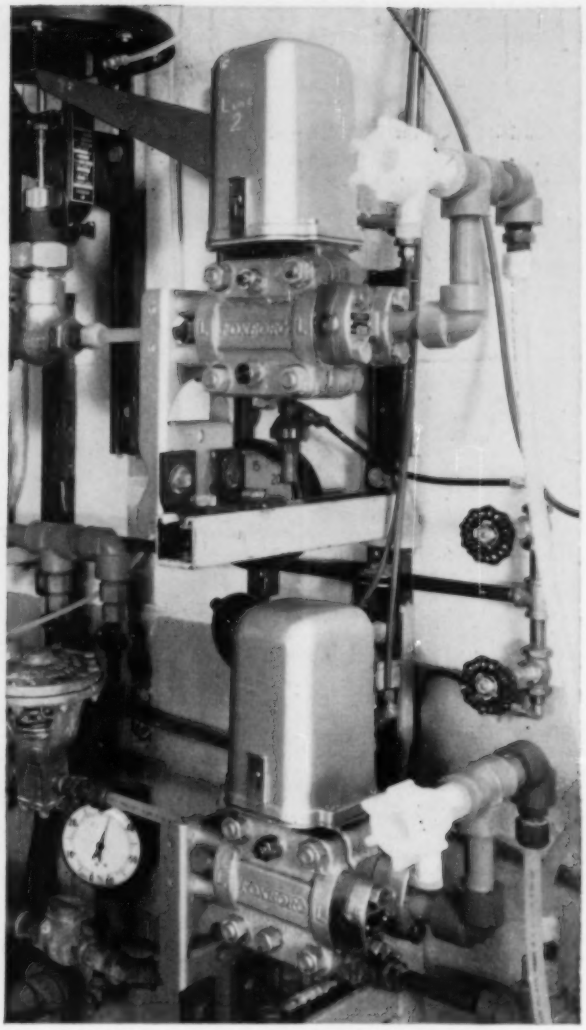
Foxboro M/40 Ratio Controllers regulate exact amount of liquid alum being added to raw water.



8% AL_2O_3 flows right through the Foxboro Integral Orifice d/p Cell. There are no pressure taps — nothing to bind or plug up.

Problem of metering liquid alum solved with the Foxboro Integral Orifice d/p Cell* Transmitter

Unique system helps Salem and Beverly Water Board save $2000 per year in water treatment costs

The Salem and Beverly (Massachusetts) Water Supply Board had a problem. They wanted the economy of liquid alum as a coagulant for water treatment. However, conventional metering devices tended to "coat" or bind when exposed to alum-and-water solution. Continued, accurate measurement was impossible.

Installation of Foxboro Integral Orifice d/p Cells proved the perfect answer. Since this unique transmitter can meter flows as tiny as .003 gpm, it permits ratioing alum syrup direct to raw water — without the problems of dilution. What's more, its wide rangeability permits using the same transmitter for both summer and winter alum feed requirements.

In over 2 years of operation, Salem and Beverly report, "there has been no evidence of plugging of our Integral Orifice d/p Cells — measurement has been stable."

Providing stable measurement of liquid alum is just one of the ways Foxboro control can improve your operating efficiency. Ask your Foxboro Field Engineer for complete details — or write for Bulletin 1-15. The Foxboro Company, 958 Neponset Avenue, Foxboro, Massachusetts.

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LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Assessments—Assessments and Sale of Lands for Taxes Held Void

Where lands assessed and covered by certificate had been conveyed to federal government and owned by federal government since time of conveyance, held assessment was void and tax sale held upon assessment was equally void. *Pioneer Gun Club* v. *Bass River Twp.*, 160 A.2d 183 (N. J., Super. Ct. Ch. Civ., Apr. 7, 1960)

Condemnation—Easement of Air Space—Failure to Comply With City Charter

Held city's action in seeking to condemn perpetual easement of zone of air space over property was defective in failing to allege adoption of ordinance by city authorizing the condemnation of such easement as required by city charter. *Brown* v. *Spalding County*, 112 S.E.2d 623 (Ga., Ct. App., Div. No. 1, Nov. 17, 1959)

Discrimination—Parking Authority—Operation of Restaurant Not State Action

Held, operation of restaurant in structure of Parking Authority was not state action so as to make the discriminatory act of proprietor the act of the state within Fourteenth Amendment. *Wilmington Parking Authority* v. *Burton*, 157 A.2d 894 (Del., Jan. 11, 1960)

False Arrest—Invalid Speeding Ordinance—Officer Not Liable

Subsequent invalidation of ordinance fixing speed limit and under which plaintiff was arrested did not invalidate jurisdiction of police court and officer making arrest was not liable for false imprisonment. *McGray* v. *City of Lake Louisville*, 332 S.W.2d 837 (Ky., Ct. App., Mar. 4, 1960)

Incorporation—Sanitary District Merged With City

Where at time city was incorporated boundaries of sanitary district were entirely embraced within city even though district did own land outside boundaries of both, held district was dissolved and merged with city by operation of law. *City of Escalon* v. *Escalon Sanitary District*, 3 Cal. Rptr. 889 (Cal., Dist. Ct. App., 3rd Dist., Apr. 5, 1960)

Licenses—Private Employment Agency—Denial of Renewal Overruled

Once an applicant for license becomes licensed, annual renewal of his license follows as a ministerial duty of Commission and a matter of right, and if violations occur Commission must resort to revocation rather than denial of renewal. *Vocelle* v. *Riddell*, 119 So.2d 809 (Fla., Dist. Ct. App., 2nd Dist., Apr. 27, 1960)

Parking—Parking of Commercial Vehicle in Residential Driveway Permitted

Where defendant was charged with parking of a commercial vehicle in driveway of his residential premises, and defendant used vehicle for transportation to and from work, held parking was a permitted "accessory use" under ordinance. *Borough of Mountain Lakes* v. *Mola*, 159 A.2d 468 (N. J., Morris Cty. Ct., Law Div., Mar. 18, 1960)

Vending Machines—Special Cigarette Machine Not Considered as "Cigarette Vending Machine" Under Ordinance

Held, devices, consisting of cabinets containing brands of cigarettes in packages and control units, electrically connected with cabinets, containing coin slots and coin receptacles, where they were installed in restaurants, grills so that coin slots were under control of persons working on premises and inaccessible to customers who were required to give their money to persons working on premises who would insert coins into slots, were not "cigarette vending machines" within purview of ordinance. *Pressley* v. *City of Chicago*, 162 N.E.2d 41 (Ill., App. Ct., 1st Dist., 2nd Div., June 14, 1960)

Zoning—Board May Vary Ordinance Requirements

Where statute granted board of zoning appeals power to vary provisions of zoning ordinance relating to building construction where hardship occurred, held board may not only vary provisions relating to construction but also relating to time of construction. *Scarpati* v. *Feriola*, 186 N.Y.S.2d 927 (N.Y. Sup. Ct., App. Div., May 18, 1959)

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RECENT CITY MANAGER APPOINTMENTS

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Metro Dade Cty., Fla.

Arthur L. Bunger
Prescott, Ariz.

R. W. Palmer, Sr.
Barre, Vt.

Thomas S. Henry
Melbourne, Fla.

Michael S. Lenrow
Westminster, Colo.

Edgar E. Welch
New Bern, N. C.

GEORGE D. ADKINS, manager of Canon City, Colo., has been appointed manager of Gulfport, Fla., suceeding C. Joseph Babineau. Mr. Adkins was previously assistant city manager, San Antonio, Texas, and a minister.

JOHN P. BIBBER, manager of Old Town, Maine, has been appointed manager of Brunswick, Maine, suceeding Thomas M. Libby. Mr. Bibber was previously manager of Isleboro and Berwick, Maine.

DONALD L. BROWN, former manager of Wakefield and Cheboygan, Mich., has been appointed manager of Excelsior Springs, Mo., succeeding David H. Pence.

A. L. BUNGER, former manager of Tempe, Ariz., has been appointed manager of Prescott, Ariz., succeeding Jack S. Branum.

JOSEPH L. COLLINS has been appointed manager of Indian Rocks Beach, Fla., suceeding Charles H. Tucker.

WILLIAM L. COLLINS, manager of Zion, Ill., has been appointed manager of Mt. Pleasant, Mich., succeeding Allan J. Kronbach.

F. R. COOP, former city manager of Inglewood and Fremont, Calif., was recently appointed city manager of Newport Beach, Calif., succeeding Robert Shelton. Mr. Coop was previously assistant to the manager of Pasadena, Calif., and a public administration advisor with the International Cooperation Administration in Belgrade, Yugoslavia.

J. A. DAVIS, manager of Fredonia, Kan., has been appointed manager of Salem, Ill., succeeding Glenn E. Varenhorst.

WILLIAM E. EDENS, director of public works and city engineer of Kinston, N. C., has been appointed manager of Brevard, N. C., succeeding Thomas S. Henry.

CARL J. ELLIS, director of finance of Madera, Calif., has been appointed administrator of that city, succeeding Victor E. Barton. Mr. Ellis was previously director of finance and city administrator of Lakewood, Calif.

EARL E. ENGLISH, manager of Tecumseh, Okla., has been appointed manager of Anadarko, Okla., succeeding L. D. Fisher.

DONALD FRAIL, school director for the Hartland, Vt., school district, has been appointed manager of that town, succeeding Edward R. Lamb.

PIERRE A. H. FRANCHE has been appointed engineer-manager of Shawinigan-Sud, Quebec, Canada, succeeding J. C. Jacques Heroux.

JOHN W. GEIEST, a retiring U. S. Navy captain, has been appointed manager of Hastings-on-Hudson, N. Y., succeeding Joseph Ward Wright.

C. CLAY HARRELL, manager of Muskogee, Okla., has been appointed manager of Columbia, Mo., succeeding Casey C. Fannin.

COLE HENDRIX, manager of Marceline, Mo., has been appointed first manager of Gladstone, Mo. Mr. Hendrix was formerly administrative assistant to the manager of San Angelo, Tex.

THOMAS S. HENRY, manager of Brevard, N. C., was recently appointed manager of Melbourne, Fla., succeeding Douglas Ayres.

ALLAN J. KRONBACH, manager of Mt. Pleasant, Mich., for the past 12 years has been appointed manager of Harper Woods, Mich., succeeding Herbert Tucker.

MICHAEL SIDNEY LENROW, assistant manager of St. Louis Park, Minn., has been appointed manager of Westminster, Colo., succeeding Philip F. Roan.

IRVING G. MCNAYR, manager of Columbia, S. C., for five years, has been appointed manager of Metropolitan Dade County, Fla., succeeding O. W. Campbell. Mr. McNayr was previously manager of Montgomery County, Md., and Springfield, Mo.

BEN MIMMNALL, sewer manager of Columbia, Pa., has been appointed manager of that borough.

FLANDERS O'NEAL, administrative intern, Philadelphia, Pa., Recreation Department, has been appointed manager of Ridgway, Pa., succeeding William E. Seachrist.

ROYCE W. OWENS, manager of Palm Beach Gardens, Fla., has been appointed manager of Belle Glade, Fla., succeeding Cleveland B. Talmadge. Mr. Owens was previously manager of Deerfield, Ill.

ROBERT W. PALMER, SR., employed by an engineering firm for the past ten years, has been appointed manager of Barre, Vt., succeeding Paul H. Hermann, now manager of Barrington, R. I. Mr. Palmer has 16 years' experience as manager of Ashland, Fort Fairfield, and Old Town, Maine, and Hastings-on-Hudson, N. Y.

EDWARD H. POTTHOFF, JR., manager of Niagara Falls, N. Y., has been appointed manager of Saginaw, Mich., succeeding C. A. Miller.

J. DONALD REIMENSCHNEIDER, manager of Northumberland, N. H., has been appointed manager of Aston Township, Chester, Pa., succeeding Bruce C. Spragg. Mr. Reimenschneider was previously assistant to the manager, Pottstown, Pa.

ROBERT K. ROGERS, assistant to the administrative officer of La Habra, Calif., has been appointed manager of Cypress, Calif., succeeding Burton Wesenberg.

MARY LOU SABATELLO, an attorney, has been appointed manager of Maywood, Ill., succeeding Eugene Joyaux. Miss Sabatello has had experience in the offices of the Illinois secretary of state and the attorney general.

GRANVILLE SHED, manager of Konawa Okla., has been appointed first manager of Wetumka, Okla.

DEAN E. SHELDON, JR., administrative assistant, Bloomington, Ill., has been appointed the first manager of Huron, Ohio.

LARRY L. SMITH, manager of St. Mary's, Ohio, has been appointed manager at La Junta, Colo., succeeding Tom Russell who died on March 3rd, 1961.

RALPH SUBER, a local businessman, has been appointed manager of Konawa, Okla., succeeding Granville Shed.

JOHN HENRY SWINDALL, assistant chief administrative officer of Baldwin Park, Calif., has been appointed manager of Big Stone Gap, Va., succeeding Bruce Sloan Gay.

EDGAR E. WELCH, director of public works and city engineer of New Bern, N. C., has been appointed manager of that city, succeeding Clifford E. Pace who died on December 9, 1960.

PATRICK O. WELCH has been appointed manager of Boyne City, Mich., succeeding Donald L. Kohler.

HAROLD B. WILLIAMS, acting manager and city clerk of Palatka, Fla., has been appointed manager of that city succeeding J. A. Hartgett.

ORIN F. NOLTING
Executive Director
International City Managers' Association

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The rugged Fitchburg Chipper requires little upkeep, and has low maintenance cost. It's economical to operate. And crews like the exclusive spring-activated feed plate which adjusts itself automatically to any size brush up to its rated capacity. This patented feed-plate provides protection from damage from foreign materials, makes for greater crew safety.

The Fitchburg Chipper is engineered to work fast, safely, and to be always "ready to go." It's the chipper which won't slow down your crews, lets you plan their work intelligently—saves you time and money.

Please send in the coupon for more information, and for copies of articles on chipping which appeared recently in leading publications. These feature articles describe five methods of brush disposal and ten new ways to utilize "by-product" chips. Send for your copies, they are well worthwhile.

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CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

Aug. 9-11—University Park, Pa.

PENNSYLVANIA WATER POLLUTION CONTROL ASSOCIATION. Annual Meeting (Pennsylvania State University). Sec.-Treas., J. R. Harvey, 996 S. Main St., Meadville, Pa.

Aug. 13-16—Chicago, Ill.

NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Meeting (Palmer House). Exec. Dir., Bernard F. Hillenbrand, 1001 Connecticut Ave., Washington, D. C.

Aug. 16-19—Cincinnati, Ohio

NATIONAL MUNICIPAL CEMETERY CONFERENCE OF U. S. AND CANADA. Annual Meeting (Netherland-Hilton Hotel). Chairman, Vernon J. Birkhimer, 4809 W. Franklin St., Richmond 26, Va.

Aug. 20-25—Minneapolis, Minn.

NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Leamington Hotel). Exec. Sec., L. C. Chadwick, 1827 Neil Ave., Columbus 10, Ohio.

Aug. 21-24—Washington, D. C.

INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Sheraton Park Hotel). Exec. Sec., David M. Baldwin, 2029 K St., N. W., Washington 6, D. C.

***Aug. 24-25—Boston, Mass.**

AMERICAN ASSOC. OF STATE HIGHWAY OFFICIALS. Regional Conf. on Improved Highway Engineering Productivity (Somerset Hotel). Mgr., W. D. Dillon, Bureau of Public Roads, Washington 25, D. C.

Aug. 26-30—Seattle, Wash.

AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Olympia Hotel). Exec. Dir., Patrick Healy, Jr., 1612 K St., N. W., Washington 6, D. C.

Sept. 2-9—Santiago de Compostela, Spain

INTERNATIONAL FEDERATION FOR HOUSING AND PLANNING. Annual Meeting (Hostel de los Reyes Catolicos). Sec. Gen., L. B. Gelpke, 2 Alexanderstraat, The Hague, Netherlands.

Sept. 4-8—Seattle, Wash.

NATIONAL TAX ASSOCIATION. Annual Meeting (Olympic Hotel). Exec. Dir., Walter J. Kress, 905 Payne-Shoemaker Bldg., Harrisburg, Pa.

Sept. 6-8—Atlanta, Ga.

GEORGIA WATER AND SEWAGE OPERATOR'S SCHOOL. Annual Meeting (Georgia Institute of Technology). Sec.-Treas., A. T. Storey, 650 Bishop St., N. W., Atlanta 13, Ga.

Sept. 7-9—Havre, Mont.

MONTANA MUNICIPAL LEAGUE. Annual Meeting. Exec. Dir., Alfred F. Klinger, Box 456, Shelby, Mont.

Sept. 10-13—Louisville, Ky.

KENTUCKY-TENNESSEE WATER POLLUTION CONTROL ASSOC. Annual Meeting (Brown Hotel). Sec.-Treas., S. Leary Jones, 602 Cordell Hull Bldg., Nashville 3, Tenn.

***Sept. 11-13—Louisville, Ky.**

AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section. Annual Meeting (Brown Hotel). Gen. Mgr., Harold F. Mount, Preston Street Rd., Water Dist. No. 1, 5400 Preston Hwy., Louisville, Ky.

Sept. 11-16—Lisbon, Portugal

INTERNATIONAL INSTITUTE OF ADMINISTRATIVE SCIENCES ROUNDTABLE. Annual Meeting (Lisbon Hotel). Dir. Gen., Paul A. Shillings, 25 Rue de la Charite, Brussels, Belgium.

***Sept. 13-15—Minneapolis, Minn.**

AMERICAN WATER WORKS ASSOCIATION—North Central Section. Annual Meeting (Pick-Nicollet Hotel). Sec.-Treas., Carl A. Flack, Water Dept., 216 City Hall, St. Paul, Minn.

Sept. 13-15—Pierre, S. Dak.

SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Meeting (St. Charles Hotel). Exec. Dir., J. G. Barger, P. O. Box 938, Aberdeen, S. Dak.

Sept. 13-15—Saranac Inn, N. Y.

AMERICAN WATER WORKS ASSOCIATION—New York Section. Semi-Annual Meeting (Saranac Inn). Sec.-Treas., Kimball Blanchard, c/o Neptune Meter Co., 22-22 Jackson Ave., Long Island City 1, N. Y.

Sept. 14-16—Mackinac Island, Mich.

MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Grand Hotel). Director, John H. Huss, 205 S. State, Ann Arbor, Mich.

Sept. 14-16—Salt Lake City, Utah

UTAH MUNICIPAL LEAGUE. Annual Meeting (Newhouse Hotel). Exec. Dir., Tom McCoy, Newhouse Hotel, Salt Lake City, Utah.

Sept. 14-16—West Harwich, Mass.

NEW ENGLAND STATE AND MUNICIPAL FINANCE OFFICERS' ASSOC. Annual Meeting (Hotel Belmont). Sec., James J. Costello, Town Accountant, Town Hall, Winchester, Mass.

Sept. 17-19—Kansas City, Kans.

LEAGUE OF KANSAS MUNICIPALITIES. Annual Meeting (Town House Hotel). Exec. Dir., E. A. Mosher, 112 West Seventh St., Topeka, Kans.

Sept. 17-20—Tamiment, Pa.

PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOC. Annual Meeting (Tamiment-in-Poconos Hotel). Exec. Sec., J. E. Slupecke, 2415 N. Front St., Harrisburg, Pa.

Sept. 20-22—Atlanta, Ga.

GEORGIA WATER AND SEWAGE ASSOCIATION. Annual Meeting (Georgia Institute of Technology). Sec., Waste Section, R. S. Ingols, Prof. School of Applied Biology, Georgia Tech, Atlanta, Ga.

***Sept. 20-22—Rapid City, S. D.**

AMERICAN WATER WORKS ASSOC.—South Dakota Section. Annual Meeting (Sheraton-Johnson Hotel). Sec., J. Darrel Bakken, Div. of San. Engr., State Dept. of Health, Pierre, S. D. *Joint Meeting with—*

SOUTH DAKOTA WATER & SEWAGE WORKS CONFERENCE. Sec., Don C. Kalda, S. Dak. State Dept. of Health, Pierre, S. D.

Sept. 20-22—Cleveland, Ohio

OHIO MUNICIPAL LEAGUE. Annual Meeting (Pick-Carter Hotel). Exec. Sec., William H. Edwards, 60 E. Broad St., Columbus 15, Ohio.

Sept. 21-22—Scottsbluff, Neb.

LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Meeting (Lincoln Hotel). Exec. Sec.-Treas., A. G. Wurst, 303 Continental Bldg., Lincoln 8, Neb.

Sept. 21-23—Atlanta, Ga.

AMERICAN INSTITUTE OF PLANNERS—Southeastern Chapter. Annual Meeting (Dinkler-Plaza Hotel). Pres., Philip A. Stedfast, City Hall, Columbia, S. Car.

Sept. 24-26—Norfolk, Va.

VIRGINIA MUNICIPAL LEAGUE. Annual Meeting (Golden Triangle and Monticello Hotels). Exec. Sec., Harold I. Baumes, 905 Travelers Building, Richmond 19, Virginia.

Sept. 24-27—Minneapolis, Minn.

AMERICAN PUBLIC WORKS ASSOCIATION. Annual Meeting (Municipal Auditorium). Exec. Dir., Robert D. Bugher, 1313 East 60th Street, Chicago 37, Ill.

Sept. 24-28—New York, N. Y.

NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICIALS. Annual Meeting (Waldorf-Astoria Hotel). Gen. Counsel, Charles S. Rhyne, 839 17th St., N. W., Washington 6, D. C.

Sept. 24-28—Poland Spring, Me.

NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Poland Spring House). Sec., Joseph C. Knox, 73 Tremont St., Boston, Mass.

Sept. 24-28—Rochester, N. Y.

AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Meeting (Manger Hotel & War Memorial Bldg.). Exec. Sec., Alfred B. La Gasse, Oglebay Park, Wheeling, West Virginia.

Sept. 24-29—St. Louis, Mo.

ILLUMINATING ENGINEERING SOCIETY. Annual Meeting (Chase Park Plaza Hotel). Managing Dir., A. D. Hinckley, 1860 Broadway, New York 23, N. Y.

Sept. 25-28—Las Vegas, Nev.

INTERNATIONAL ASSOC. OF FIRE CHIEFS. Annual Meeting (Hotel Sahara). Exec. Dir., B. Richter Townsend, 232 Madison Ave., New York 16, N. Y.

Sept. 25-29—Seattle, Wash.

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. Annual Meeting (Olympic Hotel). Managing Director, Hal Colling, 610 South Broadway, Los Angeles 14, Calif.

Sept. 26-28—Cumb'land Falls Pk., Ky.

KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (Dupont Lodge). Exec. Sec., Carl B. Wachs, Reynolds Bldg., 670 S. Broadway, Univ. of Kentucky, Lexington, Kentucky.

Sept. 27-29—Milwaukee, Wis.

AMERICAN WATER WORKS ASSOC.—Wisconsin Section. Annual Meeting (Schroeder Hotel). Sec.-Treas., Harry Breimeister, Room 607, Municipal Bldg., Milwaukee 2, Wis.

Sept. 30-Oct. 5—Montreal, Que., Can.

INTERNATIONAL ASSOC. OF CHIEFS OF POLICE. Annual Meeting (Hotel Queen Elizabeth). Exec. Dir., Leroy E. Wike, 616 Mills Bldg., 17th & Pennsylvania Ave., N.W., Washington 6, D. C.

(Continued on page 162)

Baughman has the answers to LOW COST ICE CONTROL

Communities that have infrequent or moderate snow and ice removal problems need not spend a lot of money for control equipment — inexpensive Baughman units provide adequate protection on the smallest budgets. Concern for cost control — as well as for ice control — has helped make Baughman the largest manufacturer in this field.

Super Spreader . . . This handy spreading attachment fits on rear of regular dump body, handles all types of removal material. New stabilizer arm puts trucks into service faster — no hammer or tools required. Adjustable spreading rate, discharges in both forward and reverse. Fast-acting control clutch allows accurate spot spreading. Available in mechanical chain drive and hydraulic-powered models. Write for Bulletin A-423.

Safety Spreader . . . An exceptionally manueverable pull-type spreader that can be used on sidewalks, parking lots and other confined areas, as well as for regular spreading on streets and highways. Can be pulled by any vehicle equipped with power takeoff. (Optional auxiliary engine model available at extra cost eliminates need for PTO.) Spreads accurately at all speeds, patterns adjustable up to 32 feet. Write for Bulletin A-453.

Better service through better engineering . . . service and parts from 200 distributors. A few choice dealerships available.

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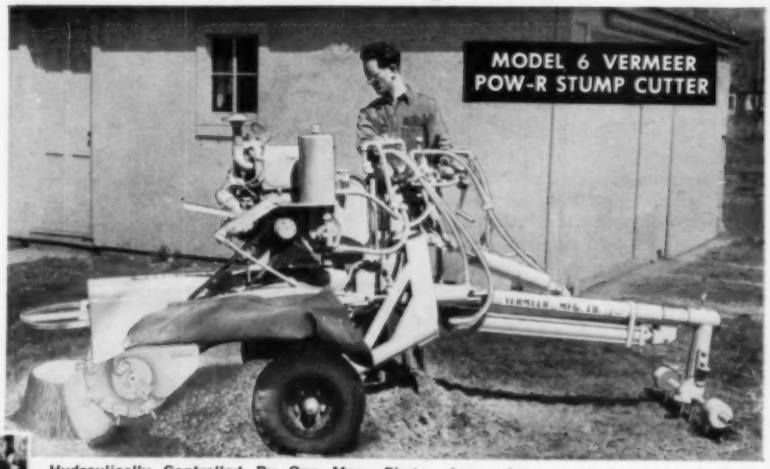
Vermeer Introduces New Pow-R-Stump Cutter Model

Smaller, Low-Cost, Easy-To-Move Model 6 Rips Out Stumps In Minutes

A new, smaller model is the latest addition to the well-known Vermeer Pow-R-Stump Cutter line. The hydraulically operated Model 6 is specifically designed for low cost stump removal in small municipalities, utilities, cemeteries, golf courses, parks and by tree service firms. Rips out any size stump in minutes . . . down 6" below the ground surface. Ideal for those hard-to-get-at places, through gates, close to buildings, fences, trees and shrubs. An ideal companion unit for Model 10 and Model 18 owners. The Pow-R-Stump Cutter is registered under U. S. Patent No. 2912022.



Hydraulically Controlled By One Man—Photo above shows control center of the Model 6. Just 3 levers control all cutting movements of the cutting wheel. No handwork, no back-breaking labor, no chopping.

Easy To Transport—pull the Model 6 from job to job with any car, truck, tractor or jeep. Only 36" in transport width. May be maneuvered into position for cutting or trailing by one man.

MAIL COUPON FOR ALL THE FACTS

Please send me complete information, literature and prices of the new Model 6 Pow-R-Stump Cutter.

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Conventions—When and Where

(Continued from page 160)

***Oct. 1-3—Springfield, Mo.**

AMERICAN WATER WORKS ASSOCIATION—Missouri Section. Annual Meeting (Kentwood Arms Hotel). Sec., Warren A. Kramer, Chief, Water Supply, Div. of Health, State Office Bldg., Jefferson City, Mo. *Joint Meeting with—*

MISSOURI WATER POLLUTION CONTROL ASSOC. Sec.-Treas., Jack K. Smith, P. O. Box 154, Jefferson City, Mo.

Oct. 1-4—Liberty, N. Y.

COUNTY OFFICERS' ASSOC. OF THE STATE OF N. Y. Semi-Annual Meeting (Grossingers Hotel). Exec. Sec., C. L. Chamberlain, 190 State St., Albany, N. Y.

Oct. 1-4—Philadelphia, Pa.

PENNSYLVANIA LEAGUE OF CITIES. Annual Meeting (Bellevue Stratford Hotel). Exec. Dir., John N. O'Neil, 2415 North Front St., Harrisburg, Pa.

Oct. 1-5—Denver, Colo.

PUBLIC PERSONNEL ASSOCIATION. Annual (International) Meeting (Denver Hilton Hotel). Dir., Kenneth O. Warner, 1313 E. 60th St., Chicago 37, Ill.

Oct. 1-6—Detroit, Mich.

NATIONAL RECREATION CONGRESS. Annual Meeting (Cobo Hall). Sec., Charles E. Hartsoe, 8 West 8th St., New York 11, N. Y.

Oct. 2-3—Moncton, N. B., Can.

AMERICAN WATER WORKS ASSOC.—Canadian Section, Maritime Branch. Annual Meeting (Brunswick Hotel). Sec., J. D. Kline, Public Service Commission, P. O. Box 608, Halifax, Nova Scotia, Canada.

Oct. 3-5—Norman, Okla.

NATIONAL AIRPORT CONFERENCE. Annual Meeting (University of Oklahoma). Chairman, Austin B. Brough, Div. of Aviation, City Hall, Philadelphia, Pa.

Oct. 4-6—Jamestown, N. Dak.

NORTH DAKOTA WATER POLLUTION CONTROL ASSOC. Annual Meeting (Gladstone Hotel). Exec. Sec., Norman L. Peterson, State Dept. of Health, Bismark, N. Dak. *Joint Meeting with—*

NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Sec.-Treas., W. Van Heuvelen, Capital Bldg., Bismark, N. Dak.

Oct. 5-6—Ithaca, N. Y.

NEW YORK-NEW JERSEY PUBLIC WORKS SCHOOL. Annual Meeting (Hollister Hall, Cornell University). Sec., J. W. Spencer, Highway Research and Extension Engineer, N. Y. State College of Agriculture, Cornell University, Ithaca, N. Y.

Oct. 6-7—Twin Falls, Idaho

AMERICAN WATER WORKS ASSOCIATION—Inter-Mountain Section. Annual Meeting (Rogerson Hotel). Sec., Max Snell, Supt. Power and Water, Soda Springs, Idaho.

***Oct. 8-10—Mandan, N. Dak.**

LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Meeting (Lewis and Clark Hotel). Exec. Sec., H. L. Holt, Box 875, Bismarck, N. D.

***Oct. 8-11—Biloxi, Miss.**

AMERICAN WATER WORKS ASSOCIATION—Alabama-Mississippi Section. Annual Meeting (Buena Vista Hotel). Sec., Ernest Bryan, San. Sales Mgr., McWane Cast Iron Pipe Co., Box 2601, Birmingham, Ala.

Oct. 8-11—New York, N. Y.

NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Commodore). Exec. Vice-Pres., A. A. Hall, 1001 Connecticut Ave., N. W., Washington 6, D. C.

Oct. 8-11—Montreal, Que., Can.

INTERNATIONAL ASSOC. OF ASSESSING OFFICERS. Annual Meeting (Queen Elizabeth Hotel). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 9-11—Cincinnati, Ohio

INTERNATIONAL MUNICIPAL SIGNAL ASSOC. Annual Meeting (Hotel Netherland-Hilton). Conference Mgr., Irwin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Oct. 9-12—Milwaukee, Wisc.

WATER POLLUTION CONTROL FEDERATION. Annual Meeting (Milwaukee Auditorium and Schroeder Hotel). Exec. Sec., Dr. Ralph E. Fuhrman, 4435 Wisconsin Ave., Washington, D. C.

Oct. 9-13—Denver, Colo.

AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Denver-Hilton Hotel). Exec. Sec., A. E. Johnson, 917 National Press Building, Washington 4, D. C.

***Oct. 10-13—Halifax, Nova Scotia, Can.**

COMMUNITY PLANNING ASSOC. OF CANADA. Annual Meeting (Nova Scotia Hotel). Nat. Dir., Maj. Gen. M. L. Brennan, 425 Gloucester St., Ottawa, Canada.

***Oct. 11-13—Madison, Wis.**

LEAGUE OF WISCONSIN MUNICIPALITIES. *Joint Meeting with*—ENGINEERING & PUBLIC WORKS INSTITUTE. Annual Meeting (Hotel Loraine). Exec. Dir., Ed Johnson, 30 E. Johnson St., Madison 3, Wis.

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STEEL PIPE
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AWWA standards

Last year Boston's Metropolitan District Commission Water Division completed an important water main extending three miles through Newton, Wellesley and Needham. They chose tar-enameled and wrapped *steel* pipe with mechanical and welded couplings in 36, 48, and 52-in. diameters in 40-ft. lengths.

Workers of the Wes-Julian Construction Corp. of Dedham are shown laying a 40-ft. length of the 52-in. pipe near Newton.

STRENGTH
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For your copy of the latest steel pipe brochure, write—

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STEEL PLATE FABRICATORS ASSOCIATION FOUNDED 1922

***Oct. 15-18—San Antonio, Texas**

AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Granada Hotel). Sec.-Treas., L. A. Jackson, Robinson Auditorium, Little Rock, Ark.

***Oct. 15-18—Portland, Ore.**

LEAGUE OF OREGON CITIES. Annual Meeting (Multnomah Hotel). Exec. Sec., Herman Kehrli, P. O. Box 5177, Eugene, Ore.

Oct. 16-19—Dallas, Texas

AMERICAN TRANSIT ASSOCIATION. Annual Meeting (Adolphus and Baker Hotels). Gen. Sec., A. W. Baker, 355 Lexington Ave., New York 17, N. Y.

Oct. 16-20—New York, N. Y.

AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting (Statler-Hilton Hotel). Exec. Sec., William H. Wisely, 33 West 39th St., New York 18, N. Y.

Oct. 16-20—Chicago, Ill.

NATIONAL SAFETY CONGRESS. Annual Meeting (Conrad Hilton Hotel). Sec.-Treas., R. L. Forney, 425 N. Michigan Ave., Chicago 11, Ill.

Oct. 17-20—Los Angeles, Calif.

UNITED STATES CIVIL DEFENSE COUNCIL. Annual Meeting (Ambassador Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta 3, Ga.

***Oct. 18-20—Cedar Rapids, Iowa**

AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Roosevelt Hotel). Sec., Wilbur E. Bjork, Service Supt., Des Moines Water Works, 1003 Locust St., Des Moines, Iowa.

***Oct. 19-20—Des Moines, Iowa**

LEAGUE OF IOWA MUNICIPALITIES. Annual Meeting (Hotel Fort Des Moines). Exec. Dir., Max A. Conrad, 308 Insurance Exchange Bldg., Des Moines, Iowa.

***Oct. 19-21—Lima, Ohio**

STREET MAINTENANCE AND SANITATION OFFICIALS OF OHIO. Annual Meeting (Hotel Argonne). Exec. Sec., Evelyn M. Murgatroyd, 71 N. Union Street, Akron 4, Ohio.

***Oct. 22-24—Jacksonville, Fla.**

FLORIDA LEAGUE OF MUNICIPALITIES. Annual Meeting (Robert Meyer Hotel). Exec. Sec., Gordon T. Butler, 218 W. Adams St., Room 301, P. O. Box 778, Jacksonville, Fla.

***Oct. 22-24—Durham, N. C.**

NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Meeting (Jack Tar of Durham Hotel). Dir., Davetta L. Steed, 1009 Raleigh Bldg., Raleigh, N. C.

***Oct. 22-25—Montreal, Que., Can.**

CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Meeting (Mount Royal Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Canada.

***Oct. 22-25—San Francisco, Calif.**

LEAGUE OF CALIFORNIA CITIES. Annual Meeting (St. Francis Hotel). Exec. Dir. & Gen. Counsel, Richard Carpenter, Hotel Claremont, Berkeley 5, Calif.

***Oct. 23-27—Monticello, Ill.**

ILLINOIS & INDIANA WATER WORKS MANAGEMENT SHORT COURSE. Annual Meeting (Allerton House). Short Course Supervisor, Hugh Davison, 1166 Illini Hall, Champaign, Ill.

Oct. 25-27—Sacramento, Calif.

AMERICAN WATER WORKS ASSOC.—California Section. Annual Meeting (Senator Hotel). Sec.-Treas., Frank F. Watters, California Public Utilities Com., State Bldg., Civic Center, San Francisco 2, Calif.

***Oct. 25-27—Toledo, Ohio**

AMERICAN WATER WORKS ASSOCIATION—Annual Meeting (Perry Hotel). Sec., J. H. Bass, Henry P. Thompson Co., 4866 Cooper Rd., Cincinnati, Ohio.

***Oct. 25-28—Tacoma, Wash.**

PACIFIC NORTHWEST POLLUTION CONTROL ASSOC. Annual Meeting (Winthrop Hotel). Sec.-Treas., G. H. Dunstan, Box 176, Pullman, Wash.

***Oct. 25-28—Atlantic City, N. J.**

AMERICAN WATER WORKS ASSOC.—New Jersey Section. Annual Meeting (Hotel Dennis). Sec.-Treas., A. F. Pleibel, 683 Prospect St., Maplewood, N. J.

***Oct. 26-28—Kodiak, Alaska**

LEAGUE OF ALASKAN CITIES. Annual Meeting. Sec., Lucy Mick, Box 1764, Palmer, Alaska.

***Oct. 29-31—Wichita, Kans.**

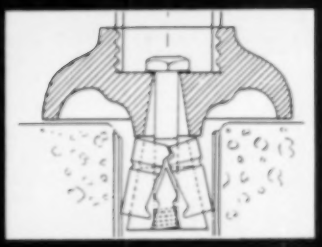
KANSAS ASSOCIATION OF MUNICIPAL UTILITIES. Annual Meeting (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kan.

***Oct. 29-31—San Antonio, Texas**

TEXAS MUNICIPAL LEAGUE. Annual Meeting (Granada Hotel). Exec. Dir., Steve Matthews, 402 Vaughn Building, Austin, Texas.

(Continued on page 164)

REPLACE RUSTED OR BENT PARKING METER STANDARDS IN MINUTES—



LOW COST! EFFICIENT! EASY INSTALLATION!

Is your city incurring a mounting expense replacing the rusted, broken parking meter standards?

THIS IS YOUR ANSWER!

Save money! Save Expensive labor time! Order the **Fischer Base.** The **Fischer Base** can be installed by one man in a matter of minutes — no digging — no jack hammers — no cement work — made of the finest corrosion-resistant, high-strength aluminum — built to last.

Read what Plainfield, N. J. has to say, "We have installed your Fischer Base and it saved many hours of labor. This is the best solution to the problem we have found."

HERE'S HOW IT WORKS:

The **Fischer Base** eliminates the costly labor of repairing the rusted, bent or broken parking meters.

One man saws off the stub of the parking meter standard as close to the sidewalk as possible. Screw standard into flange and tighten with a wrench and the job is complete.

ORDER DIRECT . . . AND SAVE

1 to 11 units $4.95 ea. 12 to 47 units $4.50 ea.

48 to 96 units $4.25 ea. F.O.B., MIDDLESEX, N. J.

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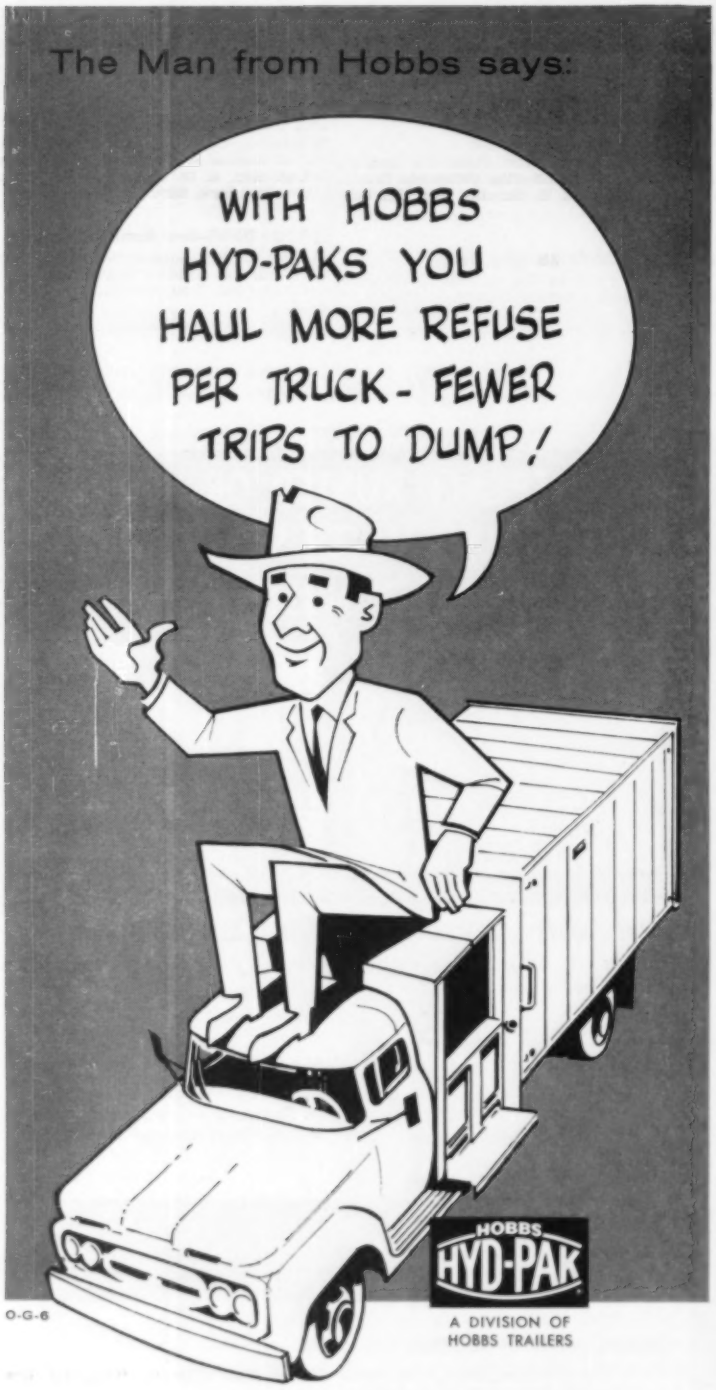
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WITH HOBBS HYD-PAKS YOU HAUL MORE REFUSE PER TRUCK - FEWER TRIPS TO DUMP!
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The BIG DIFFERENCE is in the capacity ratings. With a "16-yard" Hyd-Pak, you get 16 yards in the main storage compartment, where refuse can be completely compressed. The three-yard loading hopper is not even counted (though it can be filled and used to transport refuse at the end of a run). Before you buy refuse collection bodies, you should see this true capacity in action. We'll be happy to arrange a demonstration. Just write or wire:

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Conventions— When and Where

(Continued from page 163)

Oct. 29-31—Wichita, Kans.

NATIONAL ASSOCIATION OF MUNICIPAL UTILITIES. Annual Meeting (Broadview Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kans.

Oct. 29-Nov. 1—Washington, D. C.

NATIONAL ASSOC. OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Conference (Hotel Sheraton-Park). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

***Nov. 1-3—Baltimore, Md.**

AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Emerson Hotel). Sec., Carl J. Lauter, 6955 33rd St., N.W., Washington 15, D. C.

***Nov. 4-7—Springfield, Ill.**

ILLINOIS MUNICIPAL LEAGUE. Annual Meeting (Hotel Leland). Dir., A. L. Sargent, 537 S. 4th St., Springfield, Ill.

Nov. 12-17—London, England

PUBLIC WORKS & MUNICIPAL SERVICES CONGRESS. Annual Meeting (Olympia Hotel). Write: The Municipal Agency Ltd., 3/4, Clements' Inn, London, W. C. 2, England.

Nov. 13-17—Detroit, Mich.

AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Cobo Hall). Exec. Dir., Berwyn F. Mattison, M. D., 1790 Broadway, New York 19, N. Y.

Nov. 26-30—Detroit, Mich.

AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Statler-Hilton Hotel). Exec. Dir., W. C. Dutton, Jr., Suite 410, 2400 16th St., N. W., Washington 9, D. C.

Nov. 26-30—Miami Beach, Fla.

INTERNATIONAL CITY MANAGERS' ASSOC. Annual Meeting (Fontainbleau Hotel). Exec. Dir., Orin F. Nolting, 1313 E. 60th Street, Chicago 37, Ill.

***Nov. 30-Dec. 2—Miami Beach, Fla.**

NATIONAL MUNICIPAL LEAGUE. Annual Meeting (Fontainebleau Hotel). Exec. Dir., Alfred Willoughby, 47 East 68th St., New York 21, N. Y.

***Dec. 11-14—St. Louis, Mo.**

WEED SOCIETY OF AMERICA. Annual Meeting (Sheraton Jefferson Hotel). Bus. Mgr., Walter C. Jacob, Agronomy Dept., University of Illinois, Urbana, Ill.

A Cooperative Community

Audubon Park, N. J., has one of the most unusual administrative arrangements in the nation. It is an independent borough consisting of 499 homes owned and managed by the Audubon Mutual Housing Corporation. Each resident purchases a share in this corporation representing the value of his home. The corporation gets one tax bill and one statement for the mortgage on the entire group of homes. The owners pay this and the operating costs of the borough on the basis of their stock ownership.

It was originally built as a war project to house ship-building workers. The homes were rented until 1953 when the present corporation was formed and purchased them from the federal government. ◄◄

MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

Water Quality Report

PROCEEDINGS OF CONFERENCE ON PHYSIOLOGICAL ASPECTS OF WATER QUALITY. *Edited by Harry A. Faber and Lena J. Bryson. Copies available from Chief, Research and Training Grants Branch, Division of Water Supply and Pollution Control, Public Health Service, Washington* 25, *D. C.* 244*pp.*

A compilation of papers presented at the Conference on Physiological Aspects of Water Quality held in Washington, D. C., September 8-9, 1960. The proceedings make available for the first time a variety of detailed reports on the subjects of water quality, minerals and trace elements such as molybdenum, selenium, vanadium, and zinc. The discussions also covered the effects of insecticides, pesticides, and other organic substances.

There has been a lack of interest, until recently, in the non-biological substances in potable water. The specific aim of the conference was "To investigate the present state of knowledge with respect to the physiological effects of certain chemical constituents of water, to discover if possible what types of research can and should be undertaken in order to determine both the adverse and beneficial effects of such chemical constituents, and to learn how they may be altered or eliminated in the interest of creating a healthier environment."

How to Handle Municipal Personnel

MUNICIPAL PERSONNEL ADMINISTRATION — *Sixth Edition. The International City Managers' Association,* 1313 *East* 60*th St., Chicago, Ill.* 1960. 414*pp.* $7.50.

The latest in methods, procedures and underlying philosophy of municipal personnel administration has been incorporated into the new, sixth edition of this training and reference manual. Some of the more significant changes in this field in the past decade such as aggressive recruitment, broadened selection methods, the rapid growth of in-service training, the organization of personnel administration, the broadening of employee fringe benefits, the importance of motivation and morale in employee development, are carefully explored. This is a must for a city's manager and its personnel director.

Urban Life

THE CITY IN HISTORY—*by Lewis Mumford. Harcourt, Brace & World, Inc.* 750 *Third Ave., New York* 17, *N. Y.* 657 *pp.* $11.50.

A big, impressive book which, when placed on your library shelf, will identify you as a more sophisticated intellectual than your neighbors who have nothing to show but Toynbee. It also proves that Mr. Mumford has access to a rather substantial library.

To its credit, the book is interesting and easy to read. If you have nothing else to do and are tired of television, this is the book to while away an empty evening. The author is most enjoyable when reviewing past history. One is amused to read his description of the slums in ancient Rome, something that makes modern slums look delightful by comparison. One notes the trouble that the Caesars had with traffic congestion and how they attempted to control it. His observation about the Roman citizens who insisted on their circuses even as the invaders were attacking the walls of the city may cause you to wonder whether it has application today. However, it more probably means that the Romans had ceased caring whether they were ruled by Rome or by the invaders, and perhaps wouldn't have minded the change. The book also has enough on prostitution, sex symbols and rites, general sex habits and other bodily functions, described with what appears to us a certain amount of relish, to qualify it as "adult" reading.

But when the author starts discussing the urban culture of today, particularly in these United States, it is hard to find anything that he feels has value at all.

For example, he sourly states that our present, vigorous urban complexes are dominated by monopolistic organization, credit finance, and pecuniary prestige. He never has bothered to observe that in virtually all cases, the nation's great cities are cities of little companies that not only compete against each other, but also lend support to each other.

He glibly turns a sophisticated phrase by saying that technical adroitness is no cure for political incompetence and social uninventiveness. Yet, nowhere in the text can we find reference to the growth of the

(Continued on page 167)

Go-Devil
• lifts a ton
• hauls two
• travels at 9 mph
SELF-PROPELLED "GO-DEVIL" simplifies handling of materials that can't be palletized. Made by Drott Mfg. Corp., Milwaukee, Wis., unit is available with either gasoline or LPG-burning Wisconsin Engines.
DROTT

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Savvy by *Drott* and power by *Wisconsin* enable you to handle irregular objects—and to cut costs with every move of the *Go-Devil.* The unit lifts, telescopes, and swings loads with fingertip ease—hauls them under its own power — and eliminates re-handling.

Drott picked the two-cylinder 18-hp Wisconsin for its *"proven dependability"* in heavy-duty service. The THD provides power for the hydraulically-operated telescopic rotating boom. Its high torque assures safe lifting of heavy objects — and the hauling of two-ton loads up 20% grades without stalling.

The Wisconsin is precision-built for long life and ready availability. Tapered roller main bearings absorb thrusts. Stellite exhaust valves and seats and rotators extend valve life up to 500%! It's air-cooled, so you can count on it in sub-zero cold or 140°F. heat. Servicing is simpler, too.

Keep your materials moving — with equipment powered by heavy-duty Wisconsin Engines, 3 to 56 hp. Get Bulletin S-249. Write Dept. U-11.

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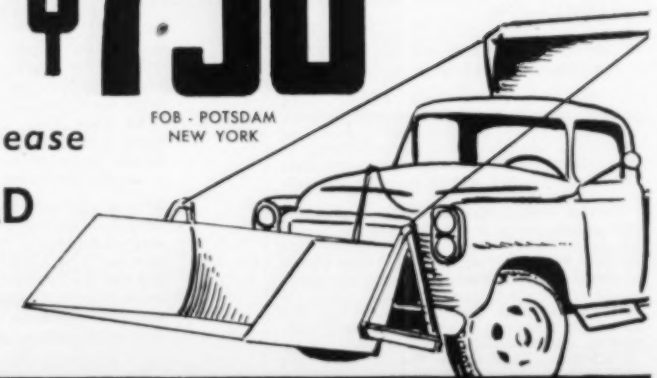

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(Continued from page 165)

council-manager form of government, spearheaded by dedicated men and women who have trained themselves professionally for the task of proving that democracy can work. This, we hold, is mature political competence and resourceful social inventiveness.

He speaks approvingly of suburban communities of the past when they were little bedroom villages for top-echelon executives. But he scorns them now that our economic standards have advanced so that junior executives and non-professionals also can afford their own modest homes in those same suburbs. He admires the Bronx Parkway, never realizing that it is the father of all modern expressways which in turn opened up new land to "urban sprawl" development.

He speaks sarcastically of space travel, which sounds a bit ridiculous today.

He pleads for the "human scale" in today's cities and then denounces the automobile, apparently ignoring the fact that both the automobile and a home with a little grass around it represent very real and human desires. And that this, coupled with the wish to work in a metropolitan complex where the opportunities for ambitious, industrious people are the greatest, is at the root of the difficulties that urban areas find themselves facing today.

It is an interesting book if you read it judiciously. It received fine reviews in the public press where the fundamental requirement is that one must be critical of local government, no matter how enlightened.

ADMINISTRATION & GOVERNMENT

GENERAL—Employee Performance Appraisal Re-examined. Public Personnel Association, 1313 East 60th St., Chicago 37, Ill. 1961. 29pp. $2.50.

FINANCE AND TAXATION

VIRGINIA—Practices Followed by Virginia Cities and Urban Counties in Placing Municipal Insurance and Surety Bonds. Virginia Municipal League, 905 Travelers Bldg., Richmond 19, Va. 1961. 8pp. $1.

LIGHTING

KANSAS—The Challenge of Street Lighting. League of Kansas Municipalities, 112 West Seventh St., Topeka, Kan. 1960. 36pp. $2.

NOTEWORTHY ANNUAL REPORTS

CHICAGO, ILL.—Chicago Public Works Annual Report. Department of Public Works, City Hall, Chicago, Ill. 1960. 28pp.

HONOLULU, HAWAII—1960 Annual Report (City and County). Board of Water Supply, Honolulu, Hawaii. 1960. 28pp.

LIVINGSTON, N. J.—Your Township's Fourth Annual Report. Township of Livingston, Livingston, Essex County, N. J. 1960. 30pp.

PLANNING, ZONING, HOUSING

ATLANTA, GA.—The Atlanta Zoning Ordinance and You. City of Atlanta Planning Department, City Hall, Atlanta, Ga. 1960. 44pp.

ILLINOIS—A Guide for County Zoning Administrators in Illinois, by James E. Lee. Bureau of Community Planning, University of Illinois, Urbana, Ill. 1961. 33pp.

MUSKEGO, WIS. — Economic and Ecologic Base, Muskego, Wisconsin. Nelson & Associates, 1733 North Farwell Ave., Milwaukee 2, Wis. 1961. 96pp. $3.

RARITAN TOWNSHIP, N. J. — Master Plan Effectuation. Herbert H. Smith Associates, 1241 Parkway Ave., P. O. Box 206, West Trenton, N. J. 1960. 36pp. $1.

URBAN RENEWAL

GENERAL—Publications Relating to Urban Renewal. The Public Library of the District of Columbia, Room 207, 499 Pennsylvania Ave., N. W., Washington, D. C. 1960. 51pp. Free on request with stamped, self-addressed envelope.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From June 6th to July 11th, 1961

Date of Issue	*Locality*	*Amount in $1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate of Int.*	*Yield %*
6/ 6/61	Clifton, N. J.	$2,745	School, General Impr.	.....	3.55	.....
6/ 6/61	Estero Mun. Impr. Dist., Calif.	2,300	Land Reclamation (gen. obl.)	17¾	6.00	.....
6/ 6/61	Waterloo, Iowa	1,000	Sewer	8¾	3.13	3.06
6/ 7/61	Stamford, Conn	809	Sanitary Sewer	10½	3.25	3.21
6/ 8/61	New York, N. Y.	30,000	Rapid Transit R.R.	13	3.60	3.55
6/12/61	Akron, Ohio	5,000	Waterworks	11	3.50	.....
6/14/61	Oxnard, Calif.	2,500	Water (rev.)	30	4.10	4.14
6/14/61	Springfield, Mass.	2,000	Street	8¾	3.10	.....
6/20/61	Branford, Conn.	464,000	Improvement	9½	3.40	3.38
6/20/61	Oyster Bay, N. Y.	3,6 0	Public Impr.	12½	3.50	.....
6/20/61	Pittsburgh, Pa.	2,120	General Public Impr.	10½	3.38	3.27
6/21/61	Albany, N. Y.	371	Local Impr.	4½	3.10	.....
6/21/61	New Bedford, Mass.	260	Highway Macadam	3	3.40	.....
6/26/61	Sioux City, Iowa	350	Sewer (rev.)	23¾	3.50	3.74
6/27/61	Glastonbury, Conn.	1,484	Sewer	5½	3.10	3.01
6/28/61	Jackson, Miss.	1,500	Coliseum Const. (callable)	10	.....	3.83
6/28/61	Mount Vernon, N. Y.	409	Equipment	3½	.....	3.00
6/2 /61	Schnectady, N. Y.	369	Parking Lot	12½	3.10	3.09
7/11/61	Heath, Ohio	1,000	Sewerage System Impr.	11	4.20	.....
7/11/61	Old Saybrook, Conn.	160	Fire House	8½	3.50	3.42

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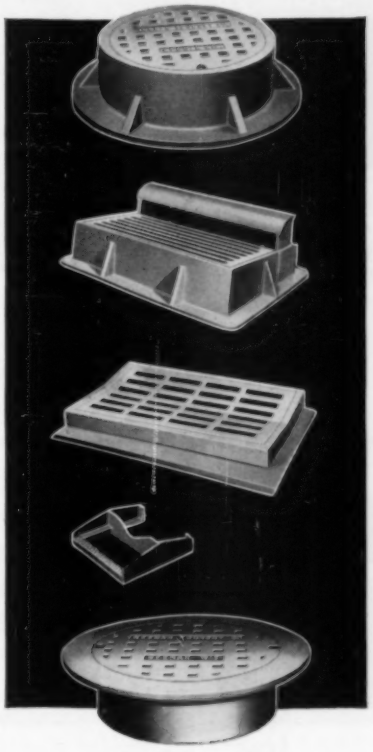

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SS WEED-KILLER

Gets them fast
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Keeps them off

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

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HERE is the answer to EMERGENCY BARRICADES

Lightweight, Easily-Adaptable

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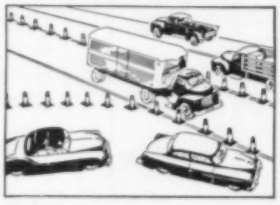
SAFE-T-CONES are proven and accepted by Federal, State and Municipal traffic authorities in hundreds of major cities ...for traffic channeling, utility repairs, line painting and emergency blockades.

SAFE-T-CONES are easily adaptable to all situations at a moment's notice. Special construction allows them to be "stacked" in small space.



Solid-Color PVC* POLY-CONES—18-inch and 28-inch sizes. Outlasts ordinary cones without upkeep!

*Poly-Vinyl Chloride

For full information write
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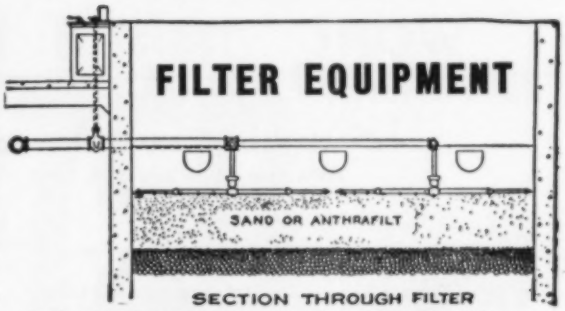
PALMER

FILTER EQUIPMENT



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

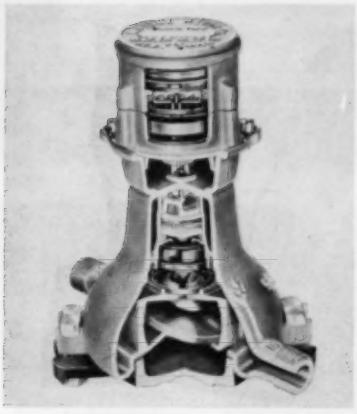
Anthrafilt Advantages

- Doubles the length of filter run attainable with sand and quartz media
- Requires one-half as much waste water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.
P. O. BOX 1655, ERIE, PA.

New Sealed Water Meter with Interchangeable Parts



A new, hermetically sealed meter that can be repaired, reset, and recalibrated in the water utility's own shop is now coming off the assembly lines of NEPTUNE METER COMPANY, 47-25 34TH ST., LONG ISLAND CITY 1, N. Y. This new unit, Trident Model 60, has been designed with new features that are flexible enough to enable the older Tridents to be converted to the new simply by installing new Model 60 parts. Significant features of the new Trident meter include:

• large sweep hand on the register that records individual gallons, making the meter easy to read, and helping the customer to determine whether he has plumbing leaks that are wasting water

• magnetic drive for the register, which eliminates all rotary seals, or packing glands

• hermetically sealed, non-fogging register with an easily replaceable crystal, in case breakage occurs. The register can be reset to zero after it has been repaired and replaced on the customer's service line. The change gear feature of the register permits it to be adjusted to compensate for small amounts of wear or mineral deposits, without requiring a major overhaul.

• totally sealed, magnetic gear train, which completely excludes all water, eliminating corrosion, danger of freezing

• a quiet, flat-disc measuring element, precision machined, making it unusually sensitive.

The model 60 Trident is being built in both the split-case and frostproof styles. A new brochure prepared by the company gives complete details. It is immediately available. For your copy, write directly to Neptune Meter on your business or professional letterhead.

Single Lug Repair Clamp Is Simple, Adjustable, Foolproof

The new "Dresser 360 All-Around Clamp" is not only easy and foolproof to install, but assures sealing efficiency at lower bolt torques. With bolts on one side only, the clamp can be slipped around the pipe and adjusted to the most convenient working position. Drop-in slots for the bolts eliminate the need for removing them from the clamp, thereby ending the problem of getting them dirty or lost in the trench.

The patented device provides ⅜ inch adjustments on diameter so that a single clamp will fit a large number of pipe diameters. In addition to repairing holes, circumferential breaks or splits, it can be used on both the rough barrel or machined ends of asbestos-cement pipe and on the run of cast iron or steel pipe.

The sectional lug and ¼-inch thick butt gasket design allows use of the clamp to join pipes of up to ¼-inch difference in outside diameter and where pipe ends are deflected up to 4° or offset ⅛ inch. An extra-thick spanner plate supports the gasket permitting its use for connecting pipes with as much as one inch gap between pipe ends. The gasket is soft enough to conform to any irregularities in the pipe surface giving a positive pack against leakage over the entire surface of the pipe covered by the clamp and it retains its sealing efficiency permanently with no necessity for retightening the bolts later.

The "360" clamp is available for

all common pipe sizes from 2 inches to 12 inches (nominal size), and in lengths from 4 inches to 30 inches depending on pipe diameter. For additional information on this versatile clamp, write DRESSER MANUFACTURING DIVISION, DRESSER INDUSTRIES, INC., BRADFORD, PA.

Hough Adds Powerful Rubber-Tired Pusher-Dozer to Line

In this photo G. A. Gilbertson, president of the Frank G. Hough Co., and J. C. Laegler, vice president, engineering, are jointly announcing the company's newest addition to its "Paydozer" line of rubber-tired pusher-dozers—the big, powerful Model D-500, which weighs over 100,000 pounds and has undergone extensive field tests in on-the-job locations.

Among the significant features of the Model D-500 is full hydraulic-articulated steering, which provides exceptional maneuverability. Turning radius of the unit is 25 feet, less than its overall length and one-third less than that of a comparable rear-steer, rubber-tired unit, according to the company.

When employed in conjunction with a scraper for push-loading, this articulation, combined with

(Continued on page 173)

American Steel and Wire
Division of
United States Steel

ONE

There's only one way to rebuild a city right. Start from the streets up. If you're involved with urban redevelopment, you're playing for keeps because the costs are enormous and must be financed over a long period. You can't afford to have public works deteriorate before they're paid for, including city streets. Keep this in mind: the longest-lasting streets are reinforced with welded wire fabric.

Concrete pavement slabs are the prey of variations in temperature, moisture, soil movement and traffic. Concrete provides the necessary compressive strength to combat cracks, but lacks tensile strength. Steel welded wire fabric delivers the tensile strength needed to prevent progressive opening of cracks and to safeguard the slab's load-carry-

ing capacity. Streets that are reinforced with welded wire fabric have a balanced design that protects edges and corners. Load is distributed evenly throughout the slab and stresses are reduced 30%.

USS American Welded Wire Fabric is your best way of making sure your streets will still be safe and smooth years from now. It is precision-made from cold drawn, 60,000 psi minimum yield strength steel wire to your exact size and style requirements, ready for immediate placement. For full information about USS American Welded Wire Fabric, or for technical assistance, write American Steel and Wire, Dept. 1207, Rockefeller Building, Cleveland 13, Ohio.

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TARCO *Dump Body* HOPPERS for Straight De-icing Salts

Gravity feed . . . **no moving parts.**

Tarco "Watchman" Hoppers in two sizes: **Model 3Y—3 cu. yd.; Model 5Y—5 cu. yd.** (Model 1Y—1 cu. yd. for "Jeeps" and pickups). **All welded** steel. **Top screens** and **tie-down clamps.**

Rugged "Watchman" Hoppers used with Type V-3 Electric Cab-Controlled "Scotchman" Spreaders make **ideal one-man operated spreaders.** Spread with body in normal "down" position. Install or remove the Hopper and Spreader in 20 minutes.

See your Tarco "Scotchman" Dealer about liberal trade-in allowances.

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THIS NEW DESIGN Cast Aluminum 2 and 4 way street sign has been created by us in answer to the many demands by municipalities for a less expensive, maintenance free, long lasting street sign.

It can save you money on purchase price, erection cost and future replacement.

Signs are sand cast of corrosion resistant prime aluminum, especially treated with new scientific coatings that make them permanently attractive, and impervious to weather, airborne acids, alkalis and other contaminative materials. Comes in choice of satin or Prismo reflectorized letters against colored background. High visibility day or night.

Write on letterhead for brochure "AC"—it's free.

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Municipal Markers • Plaques • Cemetery Markers
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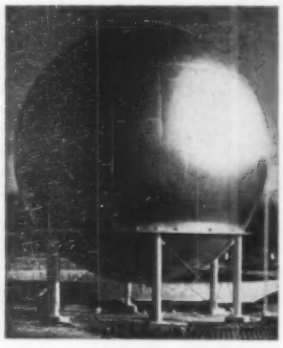

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for recovery of sewage gasses

Many municipalities are salvaging sewer gas for fuel, through the use of COLE gas holders similar to the one pictured. Send us your inquiries for tanks of this type—as well as for elevated water storage tanks . . . Take advantage of our 106 years of specialized knowledge and experience in serving America's municipalities and industries and discuss your problems with us. Visitors are always welcome at our plant. Stop by and see us.

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

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COLE
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SHOCK
TRAP® for
WATER LINES

Eliminate water hammer and pipeline bursting. Save piping and plant costs with guaranteed surge limits.

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Designed primarily for shut-down or shut-off application, this unit is used in pumping plants, irrigation systems, fire control on rocket test stands, municipal water systems, etc. Of the water interface type, the Pulsco swirl principle reduces pressures and reduces shock and surge resulting from kinetic energy within the pipeline, this by compressing gas within the chamber and by friction through the swirl chamber.

Guaranteed not to recycle, this Pulsco Spherical Shock Trap is built for pressures to 200 PSIG and up. Sizes from 34 to 102 inches diam.

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For AIRCRAFT and MARINE LOADING SYSTEMS, JET FUEL and GASOLINE

Pulsation Controls Corp. was formed with the philosophy in mind of designing engineering specialty items for the elimination of shock and water hammer, the control of pulsations in liquid and gas lines and the abatement of noise caused by vent valves, blowers and other devices.

Pulsco SHOCK TRAP designs are programmed on a digital computer to accurately fit each application to the specific conditions. This new dimension adds accuracy, speed in sizing and prompt service to our customers.

Send for bulletins, application data sheets and teletype computer load sheets.

Representatives in all principal cities

PULSATION CONTROLS CORPORATION
JAckson 5-6641 P.O. Box 169 • SANTA PAULA, CALIF.

(Continued from page 169)

rear-axle oscillation, enables the D-500 to "walk-out" of soft ground with a twisting motion. With articulated steering, the unit's rear wheels track with the front, even on sharp turns, so it doesn't have the tendency to crawl up the side of the cut being made by the scraper.

The big machine is powered by a 700-hp turbo-charged, V-12 Cummins diesel engine, reduced to 600 hp at 2100 rpm for longer life and lower maintenance. Two newly-developed, dry-type air cleaners protect the engine from airborne impurities.

Full power-shift, constant-mesh type transmission is full reversing, with speed ranges up to 15 mph in both forward and reverse.

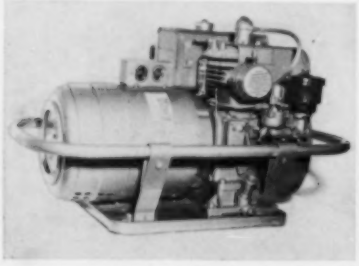
The D-500's blade is 160 inches wide and extends 10 inches beyond each side of the wheel path. Six-way hydraulic blade control permits lifting and lowering; side-to-side tilt and forward and backward pitch. Modified wings help retain the load and precise blade control is maintained by large stabilizer shoes.

Dry ballast material in all four tires improves stability and contributes to smooth riding. For details on the Model D-500 "Paydozer" write to The Frank G. Hough Co., 710 Seventh St., Libertyville, Ill.

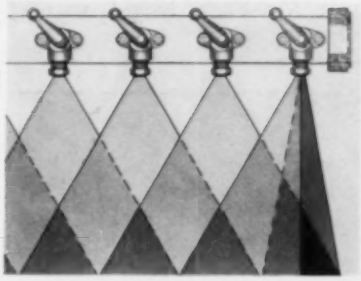
Portable Engine-Generators

A versatile new series of portable engine-generators, available in sizes of 1000, 2000, 3000 and 4000 watts a.c., 3600 rpm, provides a dependable power source to operate all types of time-saving tools, lights and appliances. Features of this highly portable, lightweight series include Briggs & Stratton engines, pull starter, protective carrying frame, rubber mounts and handy receptacles, with optional wheel dollys and housing also available.

A new longer-life, 1800 rpm series is also available with sizes starting at 750 watts and up for electric, remote, demand starting and automatic transfer arrangements. For a new brochure and additional information, write to Katolight Corp., Box 891, Mankato, Minn.



New End Nozzle for Spray Bar



Development of this special nozzle for the curb end of the spray bar on bituminous distributors has been announced by E. D. Etnyre & Co., Oregon, Ill. The spray, which normally fans out beyond the end of the bar, is directed back and along each side of the remaining spray. Normal "triple-lap" coverage is to within 2 inches of the end of the spread with a slightly heavier, sharp, clean-cut coverage to the end of the bar. Nozzle design prevents spraying the curb and eliminates shields.

Augur-Type Ice Control Unit

A salt, sand and cinder spreader body which can be installed in any height dump truck spreads material in any desired pattern up to 60 feet wide. It has been developed by Baughman Manufacturing Company, Jerseyville, Ill., and is designated as Model A1-SC.

Material is spread over snow— or ice-covered streets by a six-vaned spinning disk fed by an auger-type conveyor from the spreader body. Deflecting vanes on each side of the spinner can be lowered to protect pedestrians, parked cars or oncoming traffic. Spread pattern is controlled

(Continued on page 174)

NEW
ADVANCED DESIGN
ARROW
Side-Action Mobile Hydraulic Hammer

With the new ARROW you get these important advanced design features for faster, lower-cost tamping, breaking and cutting:

- Two new side-action models—G400 and D500
- Choice of gasoline or diesel engine
- Dash-mounted creeper drive controls
- Increased creeper power—infinitely variable speed control
- Totally enclosed creeper drive
- New, more powerful brakes
- New, heavier drive axle
- New, heavier steering axle and wider tire tread
- New, built-in oil cooler
- 12 volt electrical system
- New safety devices give added protection to operator and machine
- New, improved, adjustable seat
- Superior maneuverability—shorter turning radius
- New throttle controls

For complete information about the new ARROW Side-Action Hammer and its money-making features, WRITE TODAY!

ARROW MANUFACTURING COMPANY
194 W. Dakota Avenue,
Denver 9, Colorado

(Continued from page 173)

directly from the spreader body.

Both the auger conveyor and spinner are driven by an 18-hp engine controlled from the truck cab, and enclosed in a metal hood for protection against the weather and the material being spread.

Complete information on the new A1-SC spreader body is given in Bulletin A-464, available from BAUGHMAN MANUFACTURING CO., JERSEYVILLE, ILL.

Economical Barricades

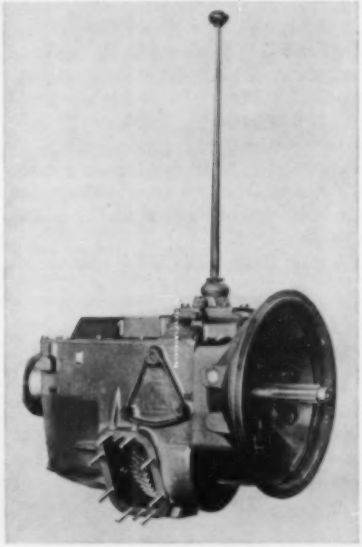
Two rugged barricades have been introduced by R. E. DIETZ CO., 225 WILKINSON ST., SYRACUSE 1, N. Y. No. 360 features tough 18-gauge steel panels; No. 361, panels made of ⅜-inch waterproof plywood. Panels on both are 12 inches by 42 inches and bolt rigidly to the angle steel legs using cap screws and hex nuts.

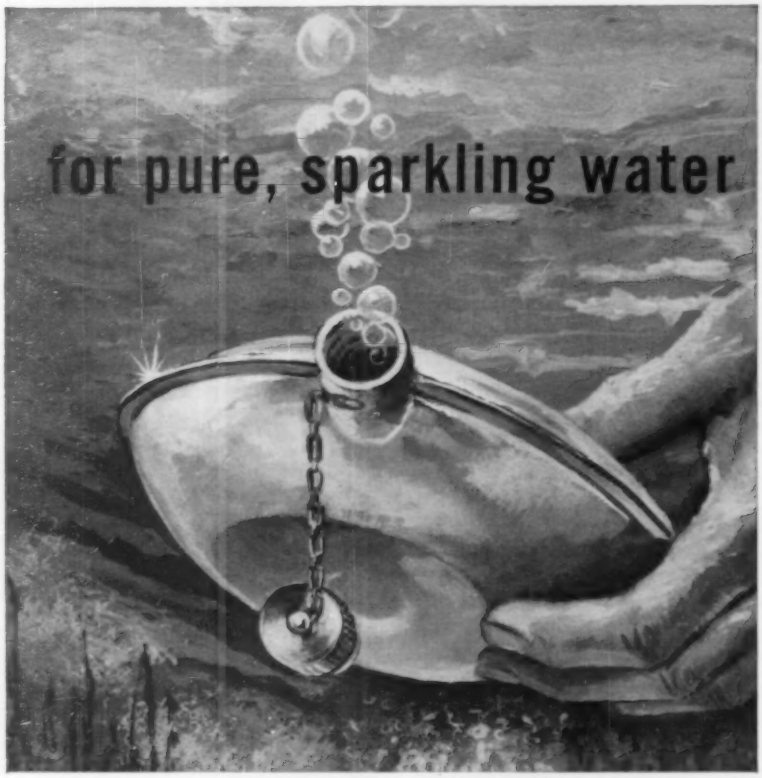
Both barricades can be used with Dietz Visi-Flash hazard warning

lights, and are finished in Federal yellow, with alternating 6-inch wide yellow and black striping. They stand 39 inches high, fold to a compact 2¾-inch width for easy storage. Highly visible, reflective "Caution" or "Danger" barricade warning signs are available for both models in either 5-inch by 18-inch or 5-inch by 30-inch sizes.

High Torque Power Takeoff

Dana Corp. has introduced a new, 6000 Series Spicer transmission case featuring an 8-bolt hole P. T. O. aperture to accommodate high-torque, side-mounted P.T.O. installations on vehicles in the 50,000-pound GVW range. It is designed to withstand severe torque and horsepower requirements involved in the operation of heavy-duty materi-





TRIANGLE BRAND COPPER SULFATE

Small, economical dosages of Triangle Brand Copper Sulfate will make your water supply palatable. It destroys algae and aquatic weeds that cause bad water odors and give water an unsavory taste. ■ Another important use of Triangle Brand Copper Sulfate is for the control of root growths, fungi and slime in sanitary sewers and storm drains without damaging trees and shrubs. ■ Write today for complete information on the use of Triangle Brand Copper Sulfate in water supply systems, sewers and drains.

phelps dodge refining corporation

300 PARK AVENUE • NEW YORK 22, NEW YORK

als handling equipment. The case permits installation of side-mounted P.T.O.s with ratings of 500 foot pounds torque, or 95-hp at 1000 rpm output shaft speed, for intermittent service.

In addition to the right-side 8-bolt aperture, the case is designed with a standard 6-bolt aperture on the left side.

The 8-bolt case can be specified as original equipment on 6000 Series transmissions, or as a replacement assembly for existing units. It is readily interchangeable with the standard 6-bolt case now in the field.

For complete information, write DANA CORPORATION, TOLEDO 1, OHIO.

Submersible Pump Passes Through 6-inch Openings

New 1½-inch electric submersible pump of 90-gpm capacity at 10-foot head and 5⅞-inch maximum diameter slips into small openings or pipes. It features a hermetically sealed motor cooled by the water it pumps. An automatic reset overload protection in the motor allows the pumps to be left unattended while handling seepage, operating automatically when water accumulates and shutting off when dry. Pumps are always primed and require no suction hose. Pump parts are brass with stainless steel motor shaft and heavy steel strainer base.

(Continued on page 177)

TWO PIECE

5¼" two-piece sliding or screw type cast iron valve boxes, covering 4" through 10" valves.

ADJUSTABLE VALVE BOXES

THREE PIECE

5¼" three-piece valve boxes supplied with bases for 4" through 24" valves. Interchangeable parts.

Manufactured to the highest standards for sure service.

A complete line of service and roadway boxes, manhole rings and covers. (Covers marked gas or water)

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OPELIKA, ALABAMA

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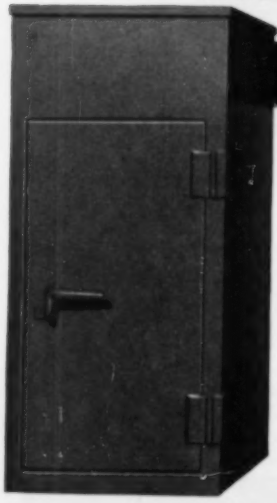

★ *"Magic Brain"* operates with any associated equipment
★ 1½" drive shaft
★ Dynamic braking
★ Higher quality relays (bifurcated contacts) improves surety of contact
★ Simplified internal wiring

You owe it to yourself to investigate this New Parkontrol® Gate with the "Magic Brain". For further information write...

GLOBE TICKET COMPANY
112 NORTH 12th STREET PHILADELPHIA 7, PA.

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ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

KEEP YOUR STREETS "HEALTHY"

During the hot, dusty months of midsummer an Etnyre Sanitary Street Flusher will keep your streets clean, cool and healthful by reducing bacterial count and disease hazard, laying dust and cooling hot pavements. Streets up to 42 feet wide cleaned in ONE TRIP—even under parked cars. See your Etnyre dealer for full information or write us today!

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This is the book that will tell you how to determine—

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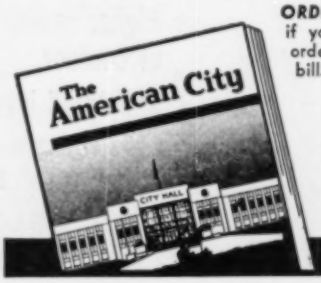
- Fair out-of-city charges
- Logical fire-protection charges
- Air conditioning, construction, service tap and other charges



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The American City
470 PARK AVE. SOUTH
NEW YORK 16, N. Y.

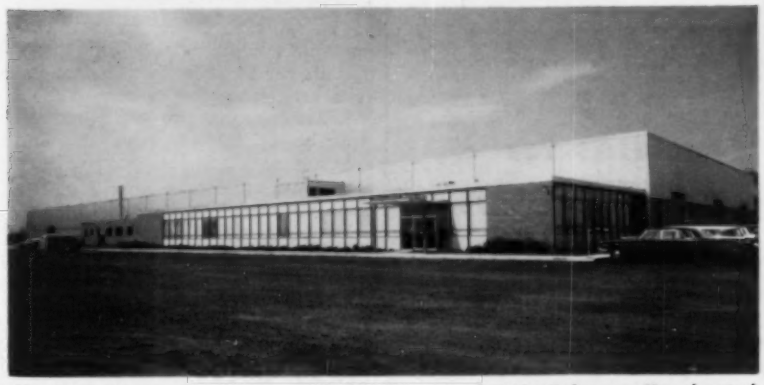
a *Buttenheim* publication

(Continued from page 175)

Both the 115-volt and 230-volt, ¾-hp single phase models have capacitor starting. Capacity is 86 gpm at 15-foot head, 42 gpm at 30-foot head, 20 gpm at 35-foot head. An adaptor for connecting pumps in series for higher heads can be attached in two to three minutes. The unit, complete with control box and cable weighs 45 pounds.

For further information, write SPEED KING MANUFACTURING DIVISION, COLUMBUS 16, OHIO.

Moves into New Manufacturing Plant



City Tank Corporation is now settled in its new plant in Culpeper, Va., located 70 miles southwest of Washington, D. C., and 85 miles northwest of Richmond, Va. The new plant occupies more than 100,000 square feet of space, and in addition to being attractive and efficient, is said to be the largest of any plant in the industry.

Advance in Indoor Incineration

The Majestic Co., Inc. of Huntingdon, Ind., announces development of the Model CSO, a smokeless-odorless gas-fired incinerator of 6-cubic-foot capacity, designed for installation in small institutional establishments and in light commercial establishments.

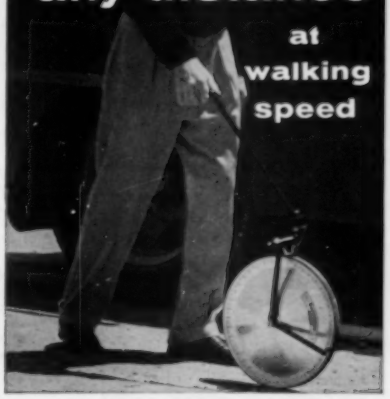
In operation, wet or dry burnable refuse, including trash, garbage, and other organic materials, is dropped through the 24-inch by 14-inch top door opening in the combustion chamber where a broad, flat flame concentrates heat over a wide area for efficient combustion. An automatic timer control offers "wet," "medium," or "dry" settings for firing the incinerator in accordance with the moisture content of the load. Both pilot and burner are adjustable and adaptable for use at any elevation with natural or LP gas.

Construction features include a 1-inch thick firebrick combustion chamber, a heavy cast-iron grate and cover assembly, an efficient new burner that delivers a total BTU output of 75,000 and a complete gas safety shutoff. Model CSO stands 44½ inches high and has a diameter of 29¼ inches.

According to the manufacturer, the CSO opens new areas of installation because of its greater range of acceptance and adaptability over other indoor incinerator models. It

(Continued on page 178)

Measure any distance at walking speed



records 100,000 ft. automatically!

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

See your engineering and surveying instrument dealer or write for complete information today!

Rolatape, Inc., 1741 14th St., Santa Monica 2, California

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

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Measuring Wheels

Crispin UNIVERSAL AIR VALVES . . . positive, full-time air control when line is filled, in operation or emptied.

Crispin PRESSURE AIR VALVES . . . provide automatic air escape while line is under pressure; prevent air accumulation in line.

Crispin AIR & VACUUM VALVES . . . permit air to escape as line fills; allow air to enter as line empties; available with rubber or metal float.

favorites for over 50 years . . .

Crispin SEWER VALVES . . . provide automatic air release while line is under pressure; design prevents sewage matter from interfering with operation.

Crispin SLIP JOINT . . . safe, fast way to remove and replace fixtures when repairing lines.

Crispin

Air Control VALVES

- efficient, safe operation
- easy accessibility
- maximum dependability
- simplified construction
- minimum maintenance

Write, wire or phone for detailed information on the *Golden Anniversary Line* of Crispin Air Valves . . . your inquiry will receive prompt attention!

AIR CONTROL VALVES FOR OVER 50 YEARS

multiplex
MANUFACTURING COMPANY
BERWICK, PENNSYLVANIA
Dept. E

Purchasing

(Continued from page 177)

has the approval of municipal building and smoke abatement authorities, the American Gas Association, and the Canadian Gas Association. For additional information and specifications, write THE MAJESTIC CO., INC., HUNTINGDON, IND.

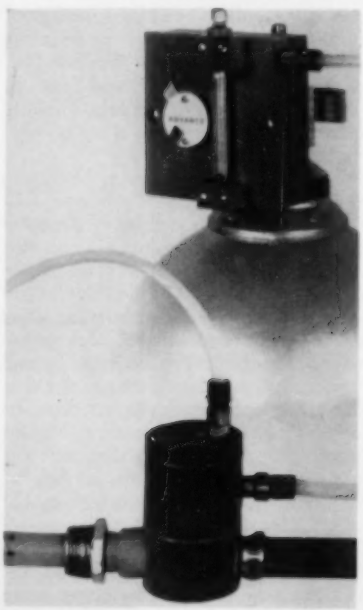
Improved Swimming Pool Chlorinator

The Advance 100 series is a compact unit which feeds up to 50 pounds per 24 hours in three ranges. It is applicable for swimming pool installations and can be connected directly to the chlorine cylinder, eliminating dirt and corrosion so often found in manifold-type systems.

Double-suction inlet valve operates in one direction to regulate and reduce pressure and as a bubble-tight safety shut-off valve. Operating in the other direction, it positively seals the system under vacuum when gas supply is exhausted or shut off.

A supply indicator flags with a red signal when the chlorine supply is shut off or exhausted. Flow rate adjustment is manual with a single rate valve. The chlorinator may be installed on new or existing systems.

For additional information, write CAPITAL CONTROLS CO., INC., DEPT. S-5, JONES AVE., WEST POINT, PA.



The Advance Series 100 chlorinator for swimming pool installations and diffuser/ejector unit.

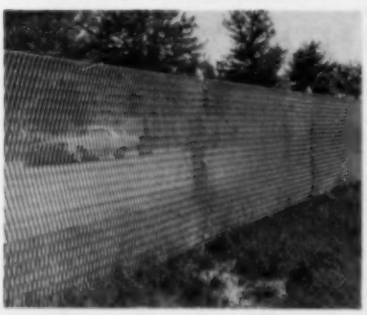
New Indoor-Outdoor Vacuum Sweeper

Development of an all new sweeper, the Power-Vac Model 500, is announced by Elgee Mfg. Co., Chatham, N. J.

This 30-inch wide, heavy-duty machine, with 3-hp, 4-cycle gasoline engine, picks up all types of debris—dust, loose dirt, paper, cigarette butts, grass clippings, wood shavings, glass, beer cans. Its 7.7-cubic-yard filter bag and 30-35 inch sweeping width enables it to clean up to 30,000 square feet per hour, the manufacturer reports.

Applications include parking lots, streets, airports, recreation areas, driveways, athletic fields, stadiums. The machine can be used both indoors and outdoors. Additional information can be obtained by writing to M. G. Lankenau, Elgee Mfg. Co., 18 Ellers Drive, Chatham, N. J.

Reduce Nighttime Highway Accidents



An expanded aluminum mesh headlight barrier system promises to greatly lessen nighttime highway danger by virtually eliminating blinding headlight glare on divided highways, reducing danger on curves.

Introduced by Alcoa, this new headlight barrier system consists of a 4-foot high fence of maintenance-free aluminum expanded metal mesh, which effectively blocks out light from oncoming vehicles yet offers an almost unimpeded view of the landscape when viewed at an angle of about 90°. It is designed for installation in the medial strip of heavily-traveled main roads.

Installations of the new screen already have been made on U. S. 130 near Hightstown, N. J.; along Gary East Expressway (Interstate Route 35) in Oklahoma City, Okla., and on U. S. 81, near Fort Worth, Texas. Other states that also have authorized installations include California, Michigan and New York.

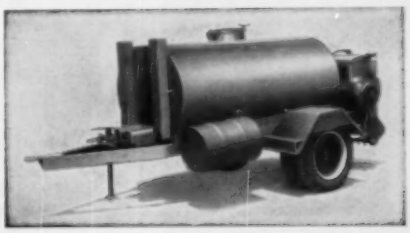
According to John N. Schumacher, who is in charge of this new product for Alcoa, the screen is easily erected and transported and has a life

(Continued on page 180)

STANDARD STEEL "S-J"

Maintenance Distributor

for VERSATILITY — EFFICIENCY — ECONOMY



HANDLES ASPHALT OR TAR—FOR PATCHING—SEALING—RESURFACING—CRACK FILLING—OR SURFACING DIRT OR GRAVEL ROADS

WORKS FAST—FAR AHEAD OF THE GRAVEL GANG

Standard Steel S-J Maintenance Distributor, designed specifically for jobs where the use of bigger equipment is costly and impractical, can be moved rapidly from one location to another for patching, shoulder repair or construction of secondary roads . . . It is equipped with suck back spray bar which permits closing of the discharge valve and pulling back all surplus material in the spray bar and piping for quick cleaning . . . All piping and valves are flanged to permit easy repair or replacement . . . The draw off valve is on curb side for safety . . . and coilless self-generating burners are standard equipment as well as a Viking special asphalt pump which can be completely drained, eliminating the necessity for thawing when the unit is started cold. Write for complete details on Model S-J.

OTHER PRODUCTS OF STANDARD STEEL
ASPHALT DISTRIBUTORS . . BURNERS . . POWER AND TRACTION DRIVEN CONSTRUCTION BROOMS . . MAINTENANCE DISTRIBUTORS . . TAR KETTLES . . AGGREGATE SPREADERS STREET FLUSHERS . . PIPE LINE EQUIPMENT . . SUPPLY TANKS SHELVING HARDWARE AND AGRICULTURAL EQUIPMENT

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LANDFILL LIFE

Operators report the Wilco Tepee® Refuse Burner is capable of increasing landfill life many times. Performance proved for efficiency, economy, safety. Write or call for full information.

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Phone WH 8-4555
Box 3897 AC-7 Memphis 14, Tenn.

Purchasing News

(Continued from page 179)

expectancy that exceeds 40 years.

For additional information on this new glare deflector screen system, which features aluminum line posts, as well as top and bottom tension wires and fasteners, write ALUMINUM COMPANY OF AMERICA, 784 ALCOA BLDG., PITTSBURGH 19, PA.

NCPM Meeting

The fall meeting of the NATIONAL CLAY PIPE MANUFACTURERS is scheduled for October 29 through November 2 at Key Biscayne Hotel and Villas at Key Biscayne, Fla., according to an announcement by G. A. Robinson, president of NCPMI.

Reports will be heard from D. H. Winans of Gladding McBean & Company, Los Angeles, Calif., Chairman of the Advertising and Public Relations Committee; R. H. Anderson of Robinson Clay Product Company, Akron, Ohio, Chairman of the Research Committee; O. L. Dickinson of Southern Clay Pipe Institute, Atlanta, Ga., Chairman of the Operating Committee.

New Photoelectric Street Lighting Control

Fisher-Pierce Division, Sigma Instruments, Inc., has announced a new photo-electric street light control with a simplified circuit and new, fully-tested Sigma true AC relay, which permits elimination of rectifier and capacitors. This three-component control has been designated as Model 6620. It is essentially a refinement of the F-P tubeless Model 6600A and uses the same her-

Your Problem:
LEAVES !

Your Answer:
The
GOOD
ROADS
LEAF
LOADER

Vacuums leaves, mulches and deposits them in towing unit. Write for full information.

Manufacturers of Snow Plows, Road Spreaders, Leaf & Litter Equipment.

Good Roads GOOD ROADS MACHINERY CORPORATION
MINERVA, OHIO

No other filtering medium compares with

ANTHRAFILT
Trade Mark Reg. U. S. Pat. Off.

Anthrafilt stands alone as the one Filtering Medium that is best for all types of filters.

Years of efficient and economical use in every type of filter plant has made ANTHRAFILT the standard of excellence in the filtering medium field.

ANTHRAFILT
offers important advantages over sand and quartz

DOUBLES length of Filter runs • REQUIRES only half as much wash water. • KEEPS Filters in service over longer periods. • INCREASES Filter output with better quality effluent. • GIVES better support to synthetic resins. • PROVIDES better removal of fibrous materials, bacteria, micro-organic matter, taste, odor, etc. • IDEAL for industrial acid and alkaline solutions. • EFFECTIVE filtration from entire bed. • LESS coating, caking or balling with mud, lime, iron, or manganese.

IDEAL FOR USE IN EVERY TYPE OF FILTER

Write for further information, test samples and quotations to:

PALMER FILTER EQUIPMENT CO.
P. O. Box 1696 — 822 E. 8th St., Erie, Pa.
Representing:
ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

metically sealed cadmium sulfide photocell and lighting protection.

Model 6620 conforms to EEI-NEMA specifications and may be used with numerous popular luminaires. It is available for mounting on bases up to 3¾ inches in diameter. A variety of F-P adapters permit crossarm, pole top or bracket mounting.

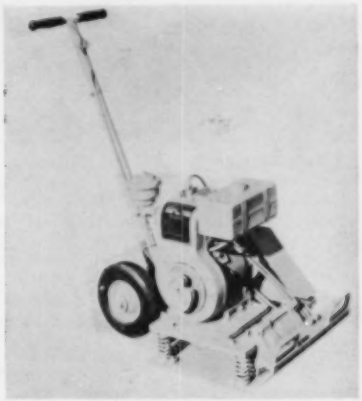
A 500-watt capacity version of this unit is also available. It is lower in cost and is designated as Model 6650. For complete information, write FISHER-PIERCE DIVISION, SIGMA INSTRUMENTS, INC., 170 PEARL ST. S. BRAINTREE 85, MASS.

Introduces New Vibratory Tamper

Dynapac CM-10, a new compact vibratory tamper for use in construction, municipal and public works operations travels at speeds up to 90 fpm, climbs grades, has an impact of 3600 pounds at 4500 vpm and an adjustable frequency up to 4500 vpm. Reported weight is 200 pounds.

A conveniently placed throttle lever provides the operator with sure control over all speeds and the newly designed vibration-free handle reportedly reduces operator fatigue. Centrifugal clutch enables the CM-10 to idle in place, makes starting easier. Its Wisconsin engine is spring mounted.

For additional information, write VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J.



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STREET PATCHER
IN TOWN

the Original

HEATED *Asphalt Rollers*

5 TON COMPACTION — WATER-TIGHT SEAL

OVER 300 CITIES REPORT, "HOT ROLL is the major advancement in recent years for asphalt street repair"!

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800 rooms

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Lanson M. Boyer, Gen. Mgr.

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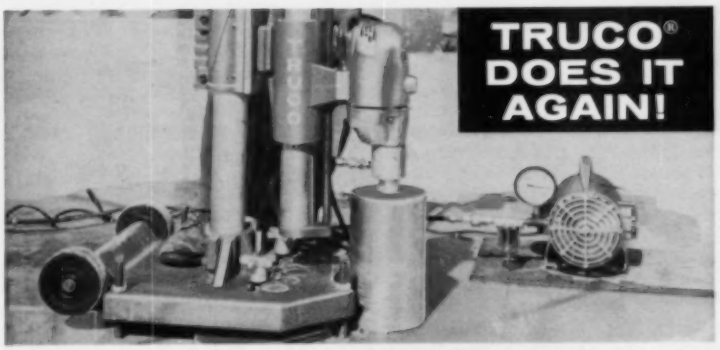
DETROIT
Cass Ave. at Bagley
Phone . . . WOodward 2-2300



Tru-Vac® Vacuum Pad anchors machine to drill 300 holes up to 6″ O.D. in 9″ extra hard aggregate with 4 to 6 rods per hole.

PROJECT: Methodist Hospital of Central Illinois, Nurses' Dormitory, Peoria, Ill. **EQUIPMENT:** Truco Model A Portable Diamond Drilling Machine; Truco Tru-Vac Vacuum Pad; Truco Diamond Drill Bits. **JOB:** drill nearly 300 holes in lift floor slabs 9″ thick, extra hard aggregate, heavily reinforced with rods 1″ to 1¼″ dia.; most holes had 4 to 6 rods. Holes 2″ to 4″ for electrical services; 3″ to 6″ for water, sewer, fire lines.

No anchor holes allowed, no ceiling against which to jack telescoping center column of Truco machine. Contractor used Truco Tru-Vac Vacuum Pad to anchor machine to floor with up to 1000 actual pounds of vacuum. Holes averaged under 20 minutes each including set-up. Write for Bulletin SC-7.

TRUCO MASONRY DRILLING DIVISION
Wheel Trueing Tool Company
231-3200 W. DAVISON AVENUE • DETROIT 38, MICHIGAN

ABOUT PEOPLE

The board of directors of **Shoup Voting Machine Corporation**, New York 17, N. Y. has elected Frank P. Stone as president. He succeeds Lewis M. Schott, who was elected chairman of the board and chief executive officer. Mr. Stone was previously vice president of the Automatic Voting Machine Corporation. The board also elevated Harold J. Lewison to the new position of senior vice president.

Frank Stone

Appointment of Robert S. Rogers as manager-national accounts, Large Lamp Products, for the Lighting Products Division of **Sylvania Electric Products Inc.**, New York 17, N. Y., has been announced by L. John Doyle, national sales manager.

Frank Marold

W. R. Colton

W. R. Colton has been named sales manager and Frank Marold, vice president and assistant general manager, of the Griffin Pipe Division, **Griffin Wheel Company,** Chicago 12, Ill., according to word from S. C. Prest, vice president and general manager of the Division. Prior to his promotion, Mr. Colton was district manager, St. Paul-Sales; Mr. Marold was formerly sales vice president.

Donald H. Mitchell has been named general sales manager of the **Hy-Dynamic Co.**, Lake Bluff, Ill., reports Frank G. Hough, president.

K. C. Dorland, general sales manager, **The Union Metal Manufacturing Company,** Canton, Ohio, reports the appointment of Calvin Friar as Manager-Outdoor Lighting Products. Mr. Friar joined Union Metal in 1953 as a sales engineer. In 1959 he was appointed assistant manager of the company's Northern California-Northern Nevada District with headquarters in San Francisco.

Calvin Friar

Julien R. Steelman, board chairman and president of the **Koehring Company,** Milwaukee 1, Wis., has announced the promotion of David W. Marchant from president and general manager of Koehring-Waterous Ltd., Brantford, Ontario, to president and general manager of Koehring Division, Milwaukee, Wis. He has also made known the advancement

David Marchant

Kensal Chandler

of Kensal R. Chandler to president and general manager of Koehring-Waterous from assistant vice president of sales, Koehring Division. Mr. Marchant succeeds E. A. Brugger, who has accepted a new assignment abroad in connection with the company's European and overseas activities.

John S. McCabe has been appointed a contracting engineer by **Chicago Bridge & Iron Co.**, steel plate fabricating and construction firm. He is assigned to the Chicago district sales office.

George E. Hall has been appointed to the newly created position of manager, sales development, Construction Machinery Division, **Allis-Chalmers Mfg. Co.**, Milwaukee 1, Wis. He will be responsible for product sales information, sales programs, market and application studies as well as coordinating advertising, exhibits and trade shows.

George Hall

Robert B. Mugridge has been appointed general sales manager of the **Philadelphia Electrical and Manufacturing Co.**, Philadelphia, Pa. He will be in charge of sales for all of Pemco's product lines, which include street and highway lighting, service station and flood area lighting equipment. Mr. Mugridge succeeds L. B. Hormberger, retired.

William F. Lange is now chief engineer of the **Products Division of Todd Shipyards Corp.**, which manufactures industrial combustion equipment and insecticidal fog systems in addition to fuel atomizers for the marine industry. J. T. Gilbride, president, announced that Mr. Lange will report to William H. Bonn, general manager of the Division in Brooklyn, N. Y.

Harold E. Coffman is the new sales promotion manager for the **Oliver Corporation,** Chicago-based farm and construction equipment manufacturing company. In his new post, Mr. Coffman will handle Oliver dealer and distribution promotional programs and will be responsible to Robert L. Dinnsen, director of Oliver advertising and sales promotion.

Harold Coffman

Word has been received of the death, on July 8, of Roy B. Everson, pioneer in the water purification and swimming pool field, and president of the **Everson Manufacturing Corp.**, Chicago 10, Ill.

Alfred H. Heim has been appointed manager of the newly created Hydraulic Products Group of the Beloit (Wis.) Division of **Fairbanks, Morse & Co.**, Chicago 5, Ill. The group will be responsible for the sales and engineering of large pumping equipment—36 inches and up—for waste treatment, flood control, irrigation and water supply.

Alfred Heim

Appointment of Louis K. Lukity to the post of technical superintendent of **Hamilton Kent Manufacturing Co.**, Kent, Ohio, has been announced by T. S. Rowe, president.

Ralph E. Moon has been named assistant sales manager of the Water Meter Division of **Badger Meter Manufacturing Company,** Milwaukee, Wis., according to recent word from Ross J. Burns, vice president. Mr. Moon has been with Badger for 15 years, serving as special sales representative and also as export manager.

Ralph Moon

In a move to consolidate sales and production management into three major areas, **Armco Drainage & Metal Products, Inc.**, subsidiary of Armco Steel Corp., Middletown, Ohio, has appointed James E. Kunkler general manager of the Atlantic Area, with headquarters at Middletown, Ohio; Alvin J. Mistler as head of the Central Area with head-

(Continued on page 184)

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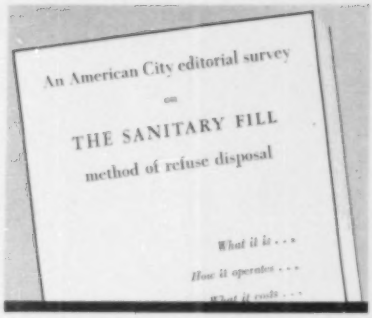
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About People

(Continued from page 182)

quarters at Topeka, Kans., and William W. Mains, general manager of the Western Area, with headquarters at Denver, Colo.

The president of **Neptune Meter Co.**, W. H. Cochrane, has made known the appointment of Edgar A. Gaudette as vice president and treasurer of the company. Mr. Gaudette had formerly been assistant to the president in charge of the financial and accounting operations of Neptune, its divisions and subsidiaries.

Edgar Gaudette

As a special truck sales representative for **Volkswagen of America**, Englewood Cliffs, N. J., Henry J. Harman will work closely with Volkswagen distributors and their more than 600 independent dealers in developing truck and station wagon sales programs.

Whitman, Requardt and Associates, Engineers, Baltimore 2, Md., announces that as of May 1, Marsden C. Smith, recently retired Chief Engineer, Department of Public Utilities, Richmond, Va., has become a consultant to the firm. Mr. Smith designed and supervised most of the water supply improvements in the Richmond system in recent years and is well-known for his work in water treatment.

Gerard N. Marion has been appointed president of **Tynan Incinerator Company, Inc.,** New York 17, N. Y.

Edward E. Brush has been elected executive vice president of **Soiltest, Inc.,** a subsidiary of Cenco Instruments Corp. He was previously vice president-sales of Soiltest, Chicago manufacturer of apparatus for engineering testing.

Charles A. Heath has been elected vice president of **Heath Survey Consultants, Inc.,** national gas leakage detection specialists with headquarters in Wellesley Hills 81, Mass. Mr. Heath is also president of Heath Tree Service, Inc., which provides line clearance service for utilities.

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- **Improved, streamlined, modernized**
- **Optional break-flange**
- **Large diameter barrel**
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- **Opens *with* pressure**
- **Closes *against* pressure**
- **Underwriters' listed**
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Completely new designs of horizontal swing check valves are available in sizes from 4 through 12 inches. They operate dependably in either vertical or horizontal positions and incorporate construction features which provide unusual flexibility of operation. These valves may be converted in the field from plain to single- or double-lever operation to meet changing requirements. Other check valves up to 24 inches.

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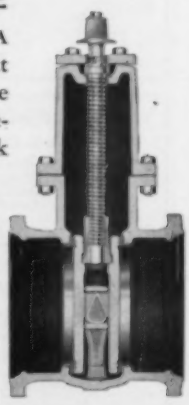
In addition to the regular line of EDDY Taper Seat AWWA gate valves, EDDY now offers a newly designed parallel seat AWWA gate valve in sizes through 12 inches. This valve has been specifically engineered to provide long, trouble-free service. Working parts are designed with heavy, thick section and large seating surfaces for dependable operation and improved wearing qualities. The valve has two-point, free-floating wedging for minimum friction and maximum operating ease. Other AWWA gate valves are available through 48 inches.



Whatever your waterworks requirements, it will pay you to have full information on the complete EDDY *line of valves and hydrants.*

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A Subsidiary of James B. Clow & Sons, Inc.

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Special report to users of Caterpillar equipment

CAT CATERPILLAR

Parts you can trust
...cost less per hour

New Cat parts stretch dollars "down where the digging's going on"

That's more than just talk! More and more users are conducting their own field trials of ground engaging tools—tips, bits, teeth and edges—to determine which brand gives them the best performance-cost balance. And time after time, they find that genuine Caterpillar ground engaging tools outclass all comers—in production and over-all economy!

Take Cat cutting edges. These edges have been contractor-tested with most of the market's leading brands all over the country. Results: Cat edge wear life—10-60% longer. Cat edge cost—15-50% less per hour. Think of that in terms of dollars!

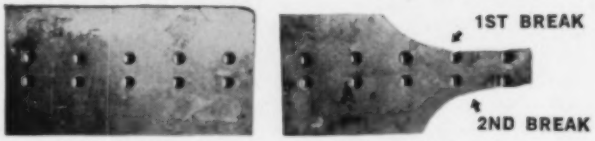
HERE'S A LOOK AT RECENT FIELD TRIALS ON SCRAPER CUTTING EDGES:

Two DW21-470 Scrapers, one with Cat *standard* edges and one with popular brand *thick* edges, were put to work "side-by-side" by a contractor in hard, red clay on an Interstate Highway job. His findings:

Brand	Price	Hours of Life	Cost per Hour
Other	$121.22	1060	$.114
Cat	$128.28*	1360	$.094

HIS SAVINGS WITH CAT EDGES—17.5% PER OPERATING HOUR

*Test completed before recent new low price of $102.30 effective.



CATERPILLAR OTHER BRAND

A Cat ⅞" stinger and another brand *one inch thick* were split in half and a section from each installed on *same* DW21-470 Scraper working in decomposed lava with embedded basaltic boulders. Other brand section broke after 48 operating hours, was reversed but broke again two hours later—a total of 50 hours of life. *Cat edge wear during period was ¼", other brand ½".*

Your Caterpillar Dealer has the facts on many of these tests—go over them with him and start to save more now.

Caterpillar continually up-dates its line of ground engaging tools. Some of the newcomers to the line that "stretch your dollars" are: new self-sharpening end bits and ripper tips, patented reversible router bits, and new-design scarifier teeth for Motor Graders. These new money-savers keep production high, costs down.

Caterpillar Tractor Co., General Offices, Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

Burroughs Accounting Equipment brings economies to an Ohio city, by increasing work output . . .

The scene: The city offices in Maumee, Ohio. The equipment: Burroughs F 1500 Typing Accounting Machine. The jobs: Tax accounting and billing, reciprocity refunds, journalizing, refund voucher posting, payroll including check writing, a check register, and deposit slip preparation. The results, according to Tax Commissioner G. K. Keller, Jr.: "After our F 1500 installation, we added payroll to the total work load handled by our previous equipment. The F 1500 not only absorbed this load with ease—but effected a $5,000 a year saving in municipal expense in the process."

G. K. Keller, Jr.

to an Ohio county, by reducing operating expenses.

The scene: The Erie County Offices in Sandusky, Ohio. The equipment: Burroughs F 2500 Computer. The job: Preparation of approximately 35,000 property tax bills. The results, according to Auditor G. G. Schweinfurth: "Our F 2500 with its automatic computation brought us a marked increase in speed and accuracy—and, in addition, it reduced our equipment requirement by 50% and our tax billing personnel requirement by 75%. We now have more efficient use of office space, better personnel utilization and equipment capacity to accommodate increasing county needs."

G. G. Schweinfurth

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Join the many municipalities provided new accounting efficiency by Burroughs Corporation. Whatever your problem, our representatives have the experience and capabilities in systems analysis to help you solve it. And we have the equipment you'll need—everything from adding machines to electronic computer systems. Call our nearby branch now. Or write Burroughs Corporation, Detroit 32, Michigan.

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"NEW DIMENSIONS / in electronics and data processing systems"

Digs rock...lays pipe...backfills

In 25 hours, Michigan handles entire 650 ft sewer job for City of Columbia

"In the two seasons we've owned our Michigan Model 55A Tractor Shovel, we've used it economically—and successfully—on just about every maintenance-type job you can imagine," reports Public Works Director Morris Thurman, Columbia, Tennessee. "It's dug ditches and pipe lines... truck-loaded dirt, gravel, asphalt and other bulk materials . . . ripped old paving . . . spread bituminous material for street repair . . . graded and leveled."

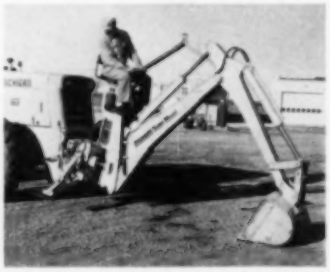
An example of one of the Michigan's more dramatic assignments was the recent laying of a 10-inch sewer line *in 90% rock*. Equipped with a Michigan Snap-Mount Backhoe, the 66 hp Tractor Shovel *did the entire job by itself*.

First the Michigan used its 1 yd tractor shovel excavating bucket to scrape away surface material so the rock ledge could be drilled and shot. Next came trench excavation, the Michigan backhoe digging out both shot rock and adjacent hard-packed clay. Then, using the hoe's 180° swing boom, the Tractor Shovel assisted workmen in hoisting and laying the concrete pipe. Next came backfilling and soon, with the machine's big tires rolling over the loose material, the desired compaction. In all, only 25 work hours had elapsed —yet the 650 ft long, 5 ft deep line was completed.

"Backhoe on or off in a minute"

"One of the best features of the Michigan is this versatility," says Mr. Thurman. "We also like its mobility . . . plus the fact that one man can attach or detach the backhoe *in less than a minute . . . without tools*. This permits the Michigan to work on other jobs right up to the minute we need the backhoe. For example, it truckloads stockpiled asphalt, a one yard bucketfull every 20 seconds." And, with power steer, hydraulic brakes, horn, lights, parking brake, torque converter and power shift transmission (standard equipment on all Michigans), this Tractor Shovel has proved easy and safe to operate everywhere.

Investigate the 26 mph, 1 yd Model 55A for yourself. It's designed especially for city work—and city budgets. It has good digging power and a wide variety of attachments. Your Michigan Distributor will be glad to demonstrate one on your job—or to show you any of the larger Michigan Tractor Shovels (buckets up to 12 cubic yards).



Michigan Snap-Mount Backhoe

Can be attached (or detached) by one man in 30 seconds . . . without tools. Digs 12'4" deep, 12" to 36" wide. Can be combined with wide variety of quickly-interchangeable front-end attachments: sprinkler-type pick-up sweeper; crane hook; fork lift; scarifier; blower, "V", straight snow plows; broad range of buckets.

Michigan is a registered trademark of

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Construction Machinery Division

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